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DEGE: A STUDY OF TIBETAN POPULATION

LI AN-CHE

THE PECULIAR SOCIAL COMPOSITION of Tibetan populations is notorious. The atypical sex ratios in households, the frequency of polyandrous unions and of households under feminine leaders, the exceptionally large proportion of the whole community set apart in monastic groups, and the like, are well known in a general way. As a contribution to a more explicit statement of population distribution, we present here an analysis of one Tibetan area.

Dege is a district of Sikang (Kham) on the Chinsha Kiang (Golden Sand River), the upper course of the Yangtze, while Kham is one of the ethnic provinces inhabited by the Tibetan-speaking peoples. We say peoples because the Tibetans are certainly a mixture of many racial groups, for the identification of which work is hardly begun. Such provinces are first Tibet proper, as everyone knows, and secondly, apart from Kham, the ethnic province of Amdo, which does not correspond to any political division but borders on Szechwan, Kansu, Ts'inghai (Kokonor), and Kham.

The Tibetan name, an abbreviation of which resulted in Dege, is *S*de-*d*ge, already an abbreviation of *s*de-*b*shi*d*ge-*b*cu or "four *s*de and ten *d*ge," namely four kinds of accomplishments and ten virtues. It was a compliment given by the famous Phagspa (1235-1280), religious teacher of the Mongol Emperor Khubilai Khan, to a celebrated Lama of the Dege family. The allusion came from Buddhistic terminology. The four kinds of accomplishments are wealth, will power, salvation, and religious doctrine; while the ten virtues consist of: not to take life, not to take what is not given, to observe moral purity (these three pertaining to the body); to speak the truth, to speak gently, not to break a promise, not to speak slander (four belonging to the mouth); not to covet

others' property, not to think of doing injury to others, and to regard the purest doctrine (three belonging to the mind).

HISTORIC BACKGROUND

Prior to 1908, the Dege family had power, both temporal and religious, over an area of about 78,000 square kilometers inhabited by some 48,500 souls, on both sides of the Chinsha Kiang, constituting a "kingdom," the largest of its kind in Sikang. Proverbial sayings used to compare Dege with Heaven and Earth.

In 1908 the so-called kingdom was abolished. Its area was divided into five districts: *H*dan-khog, *D*pal-yul, Se-çus, Thang-phug, and Dege. Since 1932 even this diminutive Dege has lost to Lhasa what used to be its dominion west of the Chinsha Kiang. The population analysis of Dege in this paper deals with the Dege east of this river.

The Dege family created a monastery of the Sakya Sect[1] by the name of Lhun-grubs-steng, popularly known as the Great Monastery, 50 li[2] east of the river. And the monastery in turn contributed to their influence. It remains a cultural center. (Besides a center of the Sakya Sect, the district enjoys centers of the Bon, the Ningma, and the Kagyud denominations.) The kingdom before 1908 and the magistrate since then have been using the Great Monastery also as a seat of government. Its distance from Kangting (Tachienlu) in the southeast is 14 horse-stages, roughly 1200 li; to Lhasa in the west, 30 horse-stages or 2400 li; to Pa-an (Patang) in the south, 7 stages or 600 li; and to Yüshu (Jyekundo) to the northwest, 7 stages or 500 li. The building of a motor road was completed in 1944 from Kangting to Yüshu, 843.7 kilometers long, running through the northern part of Dege.

Historically the Dege family traces its ancestry to Gartungtsan Yulsung, known in Chinese annals of the T'ang Dynasty as Lu Tung Tsan, who ushered the Chinese Princess Wen Ch'eng in 641 AD into Tibet to marry King Srong Tsan Gampo. The Lama whose honorary title gave the name of Dege to his family and to the place was Lu Tung Tsan's 29th-generation descendant, by the name of *S*gamston Sodnams Rinchen. It was he who first established a monastery of a thousand monks at Samar (Red Earth), south of the present-day Palyul. During the 34th generation the family moved to Cagsra, 20 li south of the

1 Tibetan religion is divided into pre-Buddhistic and Buddhistic sects. The former is called Bon. The latter is further divided in order of development into the Ningma, Sakya, Kagyud, and Gelug. These are popularly designated by colors, respectively Black, Red, Mixed, White and Yellow.

2 Three li equal one mile.

existing seat of government. A wise daughter of the 35th generation was married to the chief of Ling Ts'ung, who promised to give her all the land which she might plow within one day. But the girl directed a servant with two cows, one mule, and a horse to plow one line, starting from Khordo in the morning and ending at Nienda, Cagsra, in the evening. Thus she acquired for her parents the control of an area of land that measured a full day journey on one side.

The famous Lama, Thangtong Gyalpo (1361-1485), was invited in 1446 to select a site for the building of a monastery which was later destined to become the Great Monastery. But at that time only 108 cells for Lamaic inmates, a ceremonial number, were erected. It was at the time of the 39th generation, through Lama Kungah Rinchen, that the first temple of worship was built, namely the Double-Attainment Temple. For the Buddhistic attainment is in terms of Wisdom and Methodology. One may be inclined to either. When both are brought to mutual completion, there is said to be ideal perfection.

Lama Byamspa Phuntshogs of the 41st generation built the temple of Lhungrubteng proper mentioned above. According to the notes supplied by the Abbot of another monastery, it was also he who secured as treasure the image of Sakyamuni when the latter was eighty years of age. So far as its marvelous character is concerned, this image is comparable to those in Lhasa, the image of the eight-year old and that of the twelve-year old Sakyamuni. King Srong Tsan Gampo got hold of the former by marrying the Nepalese Princess, and of the latter through his marriage with the Chinese Princess Wen Ch'eng. These three are regarded by the Tibetans as the Buddha himself, and as performing all sorts of miracles embodied in popular legends.

This eighty-year old image at Dege was brought to Lhungrubteng from the neighborhood of Namsgyalgon, Dsingkhog, Sikang. Before it was deposited in Dsingkhog, it had been the treasure of Tsuglagkhang at Brigung monastery, Tibet. During warfare between the latter and the Sakya monastery, the people of Sikang participated with aid for the Sakya Sect, and they brought back the image to Dsingkhog.

Tanpa Tshering (1678-1739) of the 44th generation made his homage to the Manchu Emperor Yung Cheng in 1728 and was given the title of "The Pacifying Commissioner of Dege," which was changed in 1733 into "The Goodwill Commissioner." He was also instrumental in having wooden blocks made to print the Buddhistic Canons *Bgah-hgyur* or "Word of the Buddha" in 103 volumes and to print the "Complete Works of the Five Masters" of the Sakya Sect in 15 volumes. Of the 45th generation, Lama Phuntshogs Tanpa, who visited Dalai VII in Lhasa in 1739, had more wooden blocks made to print the

Expositories to the above literature by the Buddha's followers in 213 volumes (*B*stan-*h*gyur); his brother Lama Lobros Gyamtsho (1723-1774) added still more to the printing establishment and made further conquests. According to the documents preserved by Mr Liu Tsan-t'ing, Emperor Ch'ien Lung had in 1793 the whole Buddhistic Canons and Expositories printed in ten thousand sets to be distributed among the Mongol and Tibetan princes and lamas. As these were only accessible to the privileged, petitions were made from all quarters to the Dalai Lama to ask the Emperor to have more reprints made. Consequently the provincial government of Szechwan was ordered to allocate 180,000 taels of silver to enable the Dege monastery to make provision for the printing of the Canons. The whole set of books in paper weighed more than 600 catties (about 800 pounds). And the Governor of Szechwan was to send a superintendent once in three years to Dege to supervise the printing.

Sang-gyas Tanpahi Gyaltshan of the 47th generation was the author of the Genealogy of the Dege family in Tibetan, on which this summary is based, together with the help of Chinese annals. The author was born in 1786 and the work was compiled in 1824-1828. Although there were many nice words said about his mother, it is apparent that she deprived him of his prerogative for a long time before he was given full power to rule the order and the laymen. It required an insurrection on the part of her subordinates to force her to give up the reins of government. This foreshadowed a series of internal conflicts in the family in future generations which caused it to diminish in strength.

Our author's grandson, in the 49th generation, was Logros Phuntshogs, who had two wives; one gave birth to his eldest son, Dorje Senge, while the other, from a district under the rule of Lhasa, gave birth to a younger son, Jampal Rinchen. The second wife dominated her lord through the influence of the Lhasa official dispatched to Nyarong (Chanhua), Sikang. This estranged her from him. Consequently each formed a party against the other, resulting in the intervention of the Szechwan authorities. Governor Lu Ch'uan-lin sent an expedition under Changche and ousted the Lhasa official from eastern Sikang. The husband and wife, together with the two sons, were sent to Chengtu in 1897. The Imperial Court was memorialized to make Dege a regular district. The next year witnessed the death of the husband. Two Manchu officials took the opportunity to attack Governor Lu by appealing to the Emperor, saying that Lu was seeking individual glory at the expense of Tibetan welfare. As a result, Lu was much condemned and Changche was exiled to Chinese Turkestan as a prisoner. Dorje Senge and Jampal Rinchen were taken back to Dege.

Dorje Senge (1877-1928) of the 50th generation was then to inherit the

rule of Dege. But he was too weak in character to control his younger brother, Jampal Rinchen, who was always ready to deprive him of his right to be the head. The political conflict of their father and second mother was repeated between them, to be further complicated by Lhasa's influence for trouble everywhere. This invited a second intervention from Szechwan. Governor Chao Erh-feng led a military expedition to Dege in 1908. The younger brother's party was crushed, he having escaped to Tibet. Dorje Senge became tired of the difficulties of ruling. He requested that Dege be put under direct Chinese control. Thus the old district of Dege was divided into five new districts as mentioned above. Such was the end of the formal rule of the Dege family.

When the district administration was first regularized by appointment in 1908, it was of perfectural rank. From 1913 the magistrate's status was established. Within the jurisdiction of the magistracy there are 34 monasteries in 13 communities divided into 5 sects, consisting of 2,576 monks and nuns living in 1,441 cells. Apart from the magistrate's office itself, there are the Office of Sikang-Lhasa Relations, a Survey Team of the Commissioner of Mongol-Tibetan Affairs, the District Party of the Kuomintang, a third-class Post Office, a wireless station, one National Primary School, and two short-course schools.

THE POPULATION OF DEGE

According to the government statistics, the whole Tibetan population of the province of Sikang is 231,335. Our census of the district of Dege listed 11,172 people, that is 4.83 percent of the entire Tibetan population. But beside the Tibetans, the province is also inhabited by Chinese and Lolos who form two separate groups in two different regions. These groups are not included in the figure of 231,335.

There are fourteen communities in the district of Dege. Of these, three are purely pastoral and eleven are dominantly agricultural and subsidiarily pastoral. The composition of the whole population is given in Table 1. The sex

TABLE 1

Composition of the total population

	Common people	*Lamaseries*	*Miners*	*Officials*	*Total*
Households	2,878	1,441	44	7	4,370
Males	2,963	2,488	78	63	5,592
Females	5,428	88	41	23	5,580
Totals	8,391	2,576	119	86	11,172

ratio here is 100.22. From this table and the data on which it is based we may further analyze the configuration of population to show (a) the relation between the several groups, (b) the distribution of the Lamaic order in different communities, (c) age grouping of the villagers and nomads, (d) secessive and accessive types of community, and (e) family composition and family size in the different groups.

TABLE 2

Distribution in the several population groups

Kind of population	*Number of households*	*Number of persons*			*Average per household*			*Percentage*			*Percent of total population*
		male	*female*	*total*	*male*	*female*	*total*	*male*	*female*	*total*	
Common	2,878	2,963	5,428	8,391	1.03	1.09	2.94	35	65	100	65.56
Monastic	1,441	2,488	88	2,576	1.72	0.08	1.78	96	4	100	33.25
Mining	44	78	41	119	1.78	0.93	2.71	65	35	100	1.00
Officials	7	63	23	86	9.00	3.29	12.29	73	27	100	0.19
Totals	4,370	5,592	5,580	11,172	1.29	1.27	2.56	50.05	49.95	100	100.00

(a) *Different Population Groups* (see Table 2). Of the whole population, 65.56 percent are common people, both sedentary and nomadic, 33.25 percent monks and nuns, 1 percent miners of gold ore, who are largely Chinese, and 0.19 percent officials, who are also largely Chinese. The large proportion of monks and nuns is certainly the cause of unhealthy sex relations. As we shall see again in connection with family composition, there are many households of either single males or single females. Although the latter and the ecclesiastic order are not necessarily non-partners in sex relations, this situation makes a normal healthy life impossible. It may be the cause of the low birth rate and the high death rate. Unfortunately we do not have the necessary figures for these rates, for there is no system of recording births and deaths among the Tibetan-speaking peoples. But everyone is aware of the decline of the Tibetan population. Furthermore it is commonly known in social statistics that the death rate of single persons is especially high.

(b) *Distribution of the Lamaic Order.* As for the distribution of the Lamaic order in the several communities, Tables 3 and 4 are rather instructive.

In both agricultural and pastoral areas monasteries are not evenly distributed. While there are communities that have many monasteries, there is also one that has none. But the number of monasteries in the agricultural area is evidently greater than that in the pastoral area. It may be assumed that on pastoral lands population is too sparse to support a large number of such establishments. Un-

TABLE 3

Monasteries in the agricultural and pastoral areas

Communities	*Monasteries*	*Households*	*Males*	*Females*	*Total*
A. Pastoral area:					
Yidlung	6	80	233	5	238
Dsogschen	2	194	457	—	457
Ba-og	—	—	—	—	—
Totals	8	273	690	5	695
Each community	2.66	91.33	230	1.66	231.66
Each monastery		34.25	86.33	0.62	86.95
Each household			2.51	0.02	2.53
B. Agricultural area:					
Palpungs	2	222	262	1	263
Meçod	2	121	204	—	204
Gingchen	2	223	488	—	488
Cagsra	3	44	71	—	71
Pewar	1	10	44	—	44
Khordo	3	57	116	—	116
Yena	1	34	48	—	48
Dbontod	2	64	98	—	98
Kharsudo	2	72	84	—	84
Marong	1	5	5	—	5
Dsakhog	7	315	378	82	460
Totals	26	1,167	1,798	83	1,881
Each community	2.36	106.09	167.45	7.54	174.99
Each monastery		44.88	69.15	3.19	72.34
Each household			1.53	0.07	1.60
C. Both areas:					
Totals	34	1,441	2,488	88	2,576
Each community	2.43	102.9	177.77	6.29	184
Each monastery		42.4	73.18	2.59	75.19
Each household			1.72	0.06	1.78

fortunately there is no land survey to serve as a basis for working out the density of population. As we shall see, however, the numbers of nomadic and sedentary people are respectively 2,643 and 5,648. These in relation to the number of inmates of monasteries in these areas, namely 639 and 1,881, makes the ratios between the clergy and the lay people 1:3.8 and 1:3 in the two areas respectively, and 1:3.2 on the average. Thus a larger number of people actually support the religious order in pastoralism than under agriculture. And 231.66 and 174.99 as average numbers of the order in the two types of community do not mean much.

TABLE 4

Number of monasteries in terms of communities

Number of monasteries in the community	*Number of communities*			*Number of monasteries*		
	Agricultural area	*Pastoral area*	*Total*	*Agricultural area*	*Pastoral area*	*Total*
0	—	1	1	—	—	—
1	3	—	3	3	—	3
2	5	1	6	10	2	12
3	2	—	2	6	—	6
4	—	—	—	—	—	—
5	—	—	—	—	—	—
6	—	1	1	—	6	6
7	1	—	1	7	—	7
Totals	11	3	14	26	8	34
Average number of monasteries in each community				2.36	2.66	2.4

(c) *Age Grouping of the Lamaic Order.* With respect to this aspect, there are only samplings, the total of which do not correspond to those that have been tabulated for the complete number of religious orders (Table 5). For comparison with this table, but without itemizing by community, we may offer the total of age groupings of inmates of sixteen monasteries in the agricultural area, as in Table 6. The greater number of inmates fall within the age groups from 5-9 to 55-59. This is true in general, but in monasteries situated in the agricultural area inmates continue to be numerous up to 65-69. There can be no other explanation than the moderately easier life in the latter establishments.

TABLE 5

Age grouping of inmates of a number of monasteries in the pastoral area (males only)

Age groups	*Dsogschen*	*Yagzer*	*Tsaçug*	*Gegon*	*Lhabya*	*Gyalrang*	*Total*
0 - 4	—	—	—	—	—	—	—
5 - 9	18	5	5	1	1	—	30
10-14	12	4	7	4	2	4	33
15-19	11	6	1	—	1	7	26
20-24	15	2	1	2	11	3	34
25-29	26	4	1	1	5	4	43
30-34	29	2	1	2	4	4	42
35-39	31	5	—	1	5	3	45
40-44	23	7	—	2	3	4	39
45-49	31	7	1	9	5	3	56
50-54	13	5	4	2	3	6	33
55-59	22	3	10	1	8	6	50
60-64	9	5	7	1	—	3	25
65-69	10	1	3	—	1	1	16
70-74	1	3	2	1	2	—	9
75-79	4	1	—	—	1	—	6
80-84	—	2	1	—	—	—	3
85-89	—	—	—	—	—	1	1
Totals	257	62	44	27	52	49	491

(d) *Age Grouping of the Common Folk.* Next it will be interesting to compare with the above the situation with respect to age groups among the common folk of both areas. The total results of three pastoral and eleven agricultural communities are shown in Table 7, together with the percentages and sex ratios of the different age groups.

Among the villagers, males constitute 32.61 percent of the population, with females 67.39 percent. Among the pastoralists the percentages are respectively 36.83 and 63.17. The sex ratios in the two areas are respectively 49.64 and 59.80. The meaning of these data is first, more women among the villagers than among the pastoral people, and secondly, the sex ratio among both populations is much lower than that in the ordinary situation in the Chinese population. For the last it is always higher than 100, say 110, that is, there are more males than females. The large number of monks and nuns is an adequate explanation for the lower

TABLE 6

Age grouping of inmates of 16 monasteries in the agricultural area

Age groups	*Male*	*Female*	*Total*
0 - 4	—	—	—
5 - 9	6	3	9
10-14	33	3	36
15-19	95	6	101
20-24	200	3	203
25-29	170	6	176
30-34	157	3	160
35-39	183	8	191
40-44	138	8	146
45-49	151	3	154
50-54	107	8	115
55-59	97	13	110
60-64	59	9	68
65-69	51	1	52
70-74	41	3	44
75-79	19	3	22
80-84	13	1	14
85-89	18	—	18
Totals	1,543	81	1,624

sex ratio among the Tibetan folk. But going back to the summary presentation of the whole population of Dege, the overall ratio is 100.22. This means that on the whole the natural supply of Tibetan males is biologically normal. The unbalanced configuration is a cultural one due to religious practice alone, which has also left its mark on family composition. To this we shall turn presently. But it is worth while to note in this connection that nuns are far fewer than monks. For Tibetans, or for that matter all Buddhists, males count more than females religiously. Should there be more nuns than monks, the population situation would be still more dangerous.

(e) *Type of Population.* We may now compare the proportions of Dege age groups with Sundbärg's types (Table 8). The population of Dege is more or less of the regressive type, so far as the percentages of the first age group are in every case lower than the third. And according to this scale, if the age

TABLE 7

Age grouping of the common folk

Age groups	Pastoralists of 3 communities: Persons male	female	total	Percentage male	female	total	Sex ratio	Villagers of 11 communities: Persons male	female	total	Percentage male	female	total	Sex ratio
0 - 4	32	110	142	1.23	4.19	5.37	29.09	83	216	299	1.44	3.80	5.24	38.85
5 - 9	34	60	94	1.29	2.30	3.59	56.66	56	202	258	0.97	3.54	4.51	27.77
10-14	36	80	116	1.39	3.06	4.43	45.00	75	238	313	1.30	4.21	5.51	31.51
15-19	42	81	123	1.59	3.09	4.68	51.85	82	273	355	1.43	4.83	6.26	30.04
20-24	60	125	185	2.28	4.97	7.07	48.00	124	261	385	2.17	4.60	6.77	47.50
25-29	78	135	213	2.98	5.16	8.14	58.00	45	261	306	0.77	4.60	5.37	17.24
30-34	68	126	194	2.59	4.80	7.39	54.00	127	288	415	2.25	5.07	7.32	44.09
35-39	68	124	192	2.59	4.86	7.45	54.00	152	265	417	2.50	4.67	7.17	57.35
40-44	93	149	242	3.53	5.64	9.17	62.42	151	272	423	2.50	4.80	7.30	55.55
45-49	93	120	213	3.54	4.54	8.08	77.50	168	323	509	3.28	5.75	9.03	57.58
50-54	79	123	202	3.00	4.65	7.65	64.22	195	264	459	3.60	4.64	8.24	73.86
55-59	85	115	200	2.24	4.35	6.59	74.00	189	258	447	3.34	4.56	7.90	73.20
60-64	79	103	182	3.04	3.89	6.93	76.70	150	192	342	2.51	3.54	5.05	78.12
65-69	44	67	111	1.69	2.59	4.28	65.37	105	180	285	1.85	3.86	5.71	58.33
70-74	57	69	126	2.70	2.67	5.37	82.60	86	146	232	1.50	2.55	4.05	58.90
75-79	21	32	53	0.86	1.26	2.12	65.62	44	164	128	0.78	1.48	2.26	52.37
80-84	15	22	37	0.58	0.85	1.43	68.20	17	34	51	0.30	0.60	0.90	66.60
85-89	5	8	13	0.21	0.36	0.57	62.50	6	14	20	0.24	0.24	0.34	42.80
90-94	—	3	3		0.12	0.12	33.00	1	3	4	0.10	0.05	0.07	33.30
Totals	989	1,654	2,643	36.83	63.17	100.00	59.80	1,874	3,774	5,648	32.61	67.39	100.00	49.64

group 15-49 is over 50 percent, it belongs to the accessive type, but if below 50 percent, it belongs to the secessive type. In this sense the Lamaic order in both areas is of accessive type, which is self-evident. In comparing the two areas, the lamas are much more numerous in the agricultural than in the pastoral

TABLE 8

Regrouping of Dege population in comparison with Sundbärg's types

Age groups	Sundbärg's types: Pro-gressive %	Sta-tionary %	Regres-sive %	Dege population groups: Villagers	%	Ecclesi-asts	%	Nomads	%	Ecclesi-asts	%
0-14	40	33	20	870	15	146	9	325	13	63	13
15-49	50	50	50	2,810	50	1,145	71	1,364	52	285	58
50-over	10	17	30	1,968	35	333	20	927	35	143	29
Totals	100	100	100	5,648	100	1,624	100	2,643	100	491	100

area. This is certainly because a greater population and an easier life in the former area better supply the religious order.

Furthermore, 50 percent for the 15-49 age group among the villagers and 52 percent for that of the pastoralists show that the latter is of the accessive type, being supplemented by the former.

(f) *Family Composition and Size.* Next we come to the types of family composition and family size among villagers and pastoralists, as shown in Table 9. The first type of family, as indicated in the table, is that composed of males only. These may be fathers and sons, brothers, or uncles and nephews, in various com-

TABLE 9

Pastoral and agricultural family structure

Type of family	*Three pastoral communities*	*Eleven agricultural communities*
1. Families of single males		
Number of households	28	117
Number of persons	41	145
Average persons per household	1.46	1.24
2. Families of single females		
Number of households	191	605
Number of persons	371	1,245
Average persons per household	1.94	2.06
3. Families of both sexes without marital relations		
Number of households	218	439
Number of persons	471	1,322
Average persons per household	2.16	3.01
4. Families of both sexes having marital relations		
Number of households	443	837
Number of persons	1,760	2,036
Average persons per household	3.97	2.43
Totals		
Number of households	880	1,998
Number of persons	2,643	5,748
Average persons per household	3.00	2.89

binations. Their number is not great. The second type consists of single females only. This type of family is peculiar to the Tibetans, where mothers, daughters, grandmothers, and sisters may form a family, with the husband of any of the females being unknown or dead. It is not uncommon to find three generations—grandmother, mother, and daughters—living together without a recognized grandfather, father, or son-in-law. Being bilateral in descent (either matrilineal or patrilineal), the Tibetans are not particular whether the male or the female inherits the family line. When girls pass a certain age, say 17, they are free either to marry formally or to accept informally a lover without entering into matrimonial ties. In the latter case, when babies are born they belong to the mother and are taken as such by the society. There is no problem of illegitimacy. The children, when grown, bear no stigma, and their mothers are decent members of society. It is only to Chinese who may unwittingly happen to ask about the name of her children's father that the mother may sometimes blush. The third type of Tibetan family is composed of both males and females not husbands and wives, e. g., widows and widowers, bachelors and children, where the relatives may be variously grandfathers, mothers and brothers, or sisters, sons and daughters. The fourth type is an ordinary family in which there is at least one pair, husband and wife, living with any number of relatives. A further synthesis of our data (Table 10) gives percentages of these types of family.

So far as percentages of numbers of people are concerned, the four types in both areas are in increasing order from single males to matrimonial families. But with respect to the households, the percentage for the second type is greater than that for the third in the agricultural area. This means that, although the

TABLE 10

Comparison of the pastoral and agricultural family structures in number and percentage

Type of family	*Pastoral communities*				*Agricultural communities*			
	Persons	*%*	*House-holds*	*%*	*Persons*	*%*	*House-holds*	*%*
1st	41	1.55	28	3.18	145	3.06	117	5.85
2nd	371	14.03	191	21.71	1,245	26.22	605	30.28
3rd	471	17.82	218	24.77	1,322	27.84	439	21.98
4th	1,760	66.54	443	50.34	2,036	42.88	837	41.89
Totals	2,643	100.00	880	100.00	7,478	100.00	1,998	100.00

actual number of single females is less, they split into more households than do persons of the third family type. It is of course unusual for single males to live independently, and their percentages both in persons and in households are the least in both areas.

If we compare the two areas, something significant comes out. First let us consider the number of persons in the four types of family. There are more single males (3.06%) in agricultural than in nomadic communities (1.55%). Why? Evidently because settled life makes it easier for single males to get along than does the nomadic mode of life. Greater proportions of the second and third types in the agricultural area (26.22% and 27.84%) than in the pastoral area (14.03% and 17.82%) may be similarly explained. But of the fourth type there is a larger percentage in the pastoral area (66.54%) than in the agricultural area (42.88%). This can be explained by the mechanism of social selection in favor of a more organically knit social unit in nomadic than in sedentary life.

The last point is further borne out by a second consideration, that of the percentages of number of households in the two areas. For the matrimonial type of family, the pastoral area shows a greater percentage than the agricultural (50.34% as against 41.89%). In both areas the numbers in this category are larger than those of the first three types, showing the dominant importance of this type. Furthermore, the place of the fourth type—a unit of husband, wife, and their dependents—is far more important in nomadic life than in sedentary life. We may recall that the average number of people in each household of the fourth type of family is 3.97 in the pastoral area over against 2.43 in the agricultural area. A larger size of family in the former is corroborated by my findings concerning Tibetans in Amdo bordering on Szechwan, Kansu, Tsinghai, and Sikang. The average number of people in each household in the agricultural area there (2.89) is also slightly less than in the pastoral area (3.00). For nomadism is still the dominant culture among the Tibetan-speaking peoples. Sedentary life represents a less rigorous, and consequently secondary, culture under the disintegrative influence of intrusive cultures. A true Tibetan is seen in nomadism, representing the best of his mores. All the diseases, physical as well as social, are more prevalent among the Tibetan villagers, who are the "marginal men" in terms of culture contact. Even in terms of family types, the less organic ones (our first and second types) constitute larger proportions among the sedentary peoples (5.85% and 30.28%) than among the pastoralists (3.18% and 21.71%), as shown in the last table.

The Chinese family is proverbially known as more prolific. In this connection it is of special interest to make a bit of comparison. Around the seat of the

district government of Dege, we made a sampling study. There are three ethnic types of family, thus:

Three ethnic types of family	*Persons per household*
1. Tibetan families:	2.54
a. Single males as family heads: 7 households, 8 males, 6 females	
b. Single females as family heads: 55 households, 14 males, 107 females	
c. Matrimonial families: 22 households, 31 males, 48 females	
2. Sino-Tibetan families: 17 households, 38 males, 45 females	4.88
3. Chinese families: 2 households, 6 males, 7 females	6.50

The size of family is smallest among the Tibetans, while that among the Chinese is the largest and that organized by joint effort of Tibetans and Chinese is medium in position. There are few Chinese indeed in the whole district of Dege, but this slight evidence falls in line with the usual statistics of Chinese families in general. It is not without significance in this connection in terms of culture contact and transformation. It emphasizes the importance of contact to correct the unhealthy configuration of the Tibetan population.

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EMBROIDERIES OF THE EARLY NAZCA PERIOD AND THE CROP PLANTS DEPICTED ON THEM

LILA M. O'NEALE AND THOMAS W. WHITAKER

I. EMBROIDERIES OF THE EARLY NAZCA PERIOD

(By LILA M. O'NEALE)

THE PRINCIPAL TEXTILE of this study is a fragmentary embroidered piece dating from a pre-Incaic period on the Peruvian coast. Known facts concerning the fragment furnish a very slight background.

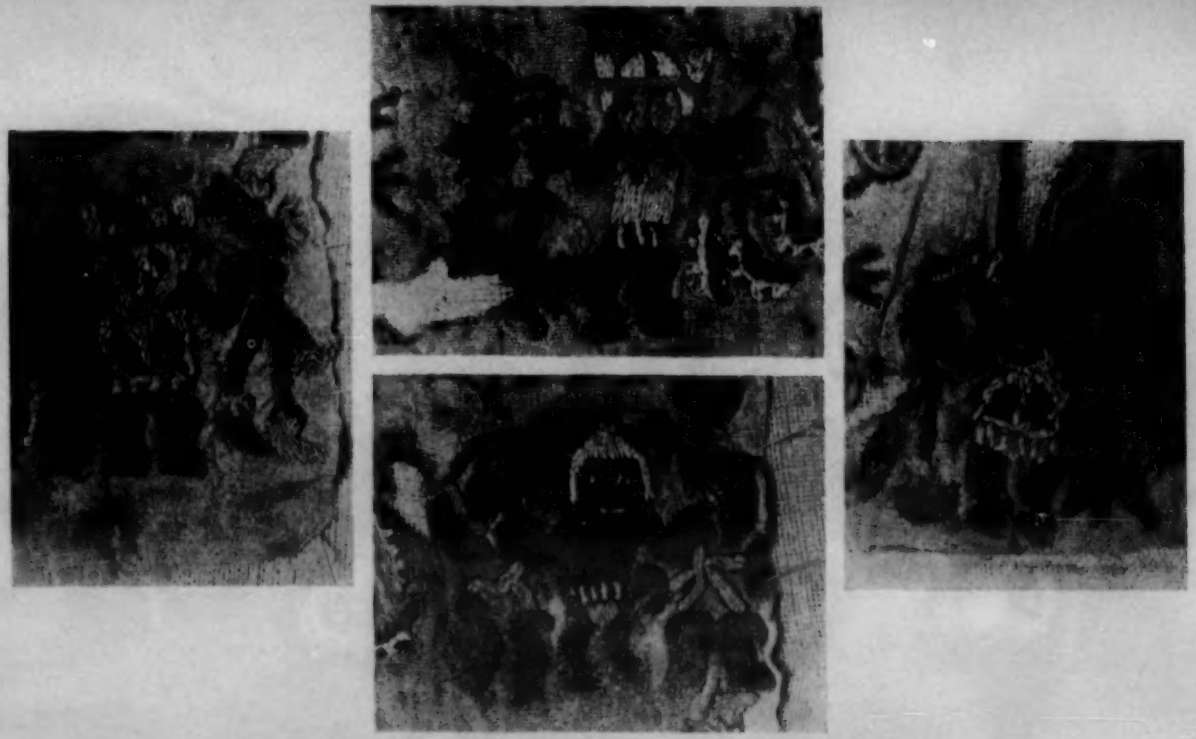
During the year 1931-32, Mrs Julia Hallett, an American resident of Lima, offered to let me purchase with her a textile currently in the possession of a gentleman who was disposing of parts of his collections. The undivided cloth fragment constituted the crosswise center section of a sleeveless shirt or tunic (unku). From an imaginary shoulder line, it measured 8.5 inches to the front and 8.5 inches to the back torn edge. The full width of the weaving between preserved side selvages is 24.5 inches.

The garment, in this study called the Nazca shirt, undoubtedly represents the textile art of the Early period and specifically the textile art of the Nacza or Rio Grande drainage on the southern coast.

Recognized features of the Early-period weavings of this area are amply evident in the textiles excavated in 1926 by Professor A. L. Kroeber. As leader of the Second Marshall Field Expedition to Peru for Field (now Chicago) Museum of Natural History, he conducted systematic operations at sites in the general vicinity of Nazca. The report[1] analyzing and describing some 160-odd excavated specimens—the majority of which are of known site and grave—is referred to frequently in the present study. No technological or aesthetic feature in the Nazca shirt under consideration but has a counterpart in a few or most of the embroidered specimens from Cahuachi, the most productive of Kroeber's excavated Nazca sites.

Kroeber[2] has made two interesting observations regarding the Early Nazca textile art which is discovered in association with typical Early Nazca pottery: it "is largely decorative and tends to the geometric. Its representative or naturalistic impulses are relatively undeveloped"; and in commenting upon a painted piece of cloth of the oldest phase of Nazca culture (Nazca A), he continues, "this piece illustrates what the Early Nazca people did when they wanted a

1 O'Neale, *Textiles of the Early Nazca Period.*
2 *Idem*, pp. 128, 129.



DETAILS OF EMBROIDERED FIGURES ON THE EARLY NAZCA SHIRT

LEFT: Man Figure 12; UPPER CENTER: Man Figure 5; LOWER CENTER: Man Figure 6; RIGHT: Man Figure 13.

FIG. 1. Embroidery plan of the entire Nazca shirt: second row from bottom, left to right, Men 1-6; bottom row, Men 7-12; center bottom, Man 13; second row from top, right to left, Men 14-19; top row, Men 20-25; center top, Man 26.

picture on a piece of cloth: they simply painted it on. They did not seriously attempt to weave or embroider the picture." These observations are so frequently exemplified by the design motives illustrating the previous report that the importance of a rare or possibly only an aberrant type of Nazca embroidery heightens interest to make a detailed study.

The general plan of the embroidery on the Nazca shirt is simple (Fig. 1). There are two courses or rows of men figures across the front and across the back. At the opposite ends of the lengthwise neck opening, which cuts through the rows, are single figures, their heads on an approximate level with the girdles of their neighbors to left and right, that is, in a position corresponding to a half-drop repeat. These two figures are differentiated from the others only in having heads formed by a type of three-dimensional embroidery known as needle-knitting.

Unlike many of the human figures in ancient Peruvian textiles, these on the Nazca shirt have no grotesque features. There are a few clear evidences and some less determinate suggestions of face painting, but there is neither distortion of pose nor combination of human attributes with those of birds and animals. The late Eugenio Yacovleff, who several times talked with me about the textile and who published [3] a few of its motives, was convinced that all the men figures were straight-forward attempts to represent agriculturalists who might, he conceded, be taking part in a fertility ceremony.

Each man figure stands upright, his arms bent at the elbow, his hands on a level with his shoulders. The hands are closed, but the long thumbs extend beyond the fists and the four fingers are individual units. In each hand is held a plant form or perhaps some object with significant meaning.

Yacovleff's main interest in the Nazca shirt was confined to the several details which it contributed to his and Herrera's study of flora as depicted in the various arts of the ancient Peruvians. Dr Thomas W. Whitaker (Geneticist with the Bureau of Plant Industry, Soils, and Agriculture Engineering, United States Department of Agriculture, and during the year 1946-47 a Guggenheim Fellow) interrupted work on his project under way at the University of California Museum of Anthropology to undertake an investigation into all the plant forms embroidered on the garment, now presented in the later half of this joint article.

The technological and other features of the Nazca shirt parallel in many respects those occurring in the embroidered specimens in Kroeber's collection

3 Yacovleff and Herrera, *El Mundo Vegetal.*

from Cahuachi and other localities. The collection from these Early Nazca sites included embroideries on cotton and on wool fabrics, but for purposes of comparison, only the embroidered cotton cloths come into the present study. And, of the embroidered cottons, only those with surface patterning are considered. This delimitation rules out several cotton garments and fragments decorated solely with needlemade edge trimmings.[4]

A complete list of the Nazca specimens with surface embroidery, together with their sites and grave numbers appear in Table 1. Specimens designated by numbers containing six figures are in Chicago Natural History Museum; the

TABLE 1

Early Nazca embroidered textiles: sites and graves

Nazca		
	LMO	Shirt
Nazca		
	9120	Kerchief
Majoro		
Grave A6:	170465a	Mantle
Cantayo		
Grave C-ax:	171045	Kerchief ?
	171049	Band
	171050	Band
Grave C-ax:		
13:	171054	Band
Cahuachi		
Grave G:	171140b [1]	Band
	171140c	Band
Grave Aj 10:	171216	
	171218a*	Mantle
	171219a*	Mantle
	171220*	Mantle
	171222	Mantle
Grave Aj 13:	171266a	Veil
	171266b	Shirt

* Three large and two small fragments of same mantle referred to by a single number Cahuachi 171220.

4 O'Neale and Kroeber, *Textile Periods in Ancient Peru.*

specimen with four figures, a surface find lacking precise provenience, is part of the Max Uhle collection in the University of California Museum of Anthropology; the specimen designated by initials LMO is the Nazca shirt, the subject of this study.

Colors in Early Nazca Embroideries

The wide range of colors represented by those in the thirteen Early Nazca embroideries in the Kroeber and the Uhle collections is one of their surprising features. And, since the Nazca shirt is attributed through its style to the same period and general provenience, comparisons with these previously made analyses aid materially in establishing its position.

In *Textiles of the Early Nazca Period*[5] the analysis of a considerable number of dyed wool and a smaller group of cotton yarns was undertaken for the purpose of determining what hues were in common use, whether, as evidenced by frequencies, the ancient weaver-embroiderers favored certain colors, and whether certain combinations of colors suggested conventional groupings. From the beginning of the experiment the foreseen difficulties were fairly obvious. The results were categorized as "only relatively accurate."[6]

Out of 350 yarns matched against color samples in Maerz and Paul's *Dictionary of Color*,[7] 96 (27 percent) were taken from the embroidered fabrics listed in Table 1; of 190 printed samples matched, 69 (36 percent) were represented by from one to five yarns from these same embroideries. The complete series is presented in this paper in Table 2. One fragment, Cantayo 171054, has embroidery in red, dull orange, and "black" wools, but they are so discolored and modified by the sand caked on the surface that no attempt was made to match them to the printed samples in the *Dictionary*.

There are fourteen dyed wools in the Nazca shirt, and these add nine new hues to the previous number. The totals for the present study are, therefore, 110 (96 + 14) specimens matched, and 78 (69 + 9) hues represented.

The relative frequencies of light colors, medium-value colors, and dark colors (190) found in the swatches representing the (1) previously analyzed Early Nazca textiles compare with (2) those represented in the surface embroidered pieces (including the Nazca shirt) as given in the following ratios:

1. 45 (light) : 27 (medium) : 118 (dark) : : 24% : 14% : 62%
2. 18 (light) : 11 (medium) : 50 (dark) : : 23% : 14% : 63%

5 Pages 136-152.
6 *Idem*, p. 136.
7 Maerz and Paul, *Dictionary of Color*.

TABLE 2

Nazca embroidery yarns matching Maerz and Paul's color samples*

I. Red-to-orange: shell, rose, coral, brickdust, cedar, chestnut, chocolate, etc.
- Pl. 1: C 10 (no. 171266a), J 9 (nos. 171140b, c, 171266b)
- Pl. 3: J 9 (no. 171216)
- Pl. 4: E 10 (no. 170465a), G 10 (nos. 171216, 171222, 171266b), L 7 (no. 9120)
- Pl. 5: J 11 (LMO), K 9 (nos. 9120, 171050), L 7 (nos. 171266a, b), L 9 (no. 171222), L 11 (171140b, c, 171216, 171220)
- Pl. 6: H 10 (no. 171049), I 9 (no. 171050), L 6 (nos. LMO, 9120)
- Pl. 7: H 10 (no. 171220)
- Pl. 8: H 10 (no. 9120), J 10 (no. 171045), L 11 (no. 171220)

II. Orange-to-yellow: corn, ecru, mustard, khaki, olive, bronze, olive brown, bronze, etc.
- Pl. 10: J 5 (no. 171216), K 6 (no. 171216)
- Pl. 11: B 6 (no. 171220), C 3 (no. 171266b), K 4 (no. 9120)
- Pl. 12: A 8 (no. 171266a), J 9 (no. 171220), L 7 (no. 171266b), L 8 (nos. 9120, 171266a), L 9 (nos. 171222, 171266b)
- Pl. 13: H 7 (LMO), J 7 (no. 171049), K 2 (no. 171050), L 4 (no. 171050), L 9 (nos. 171216, 171220)
- Pl. 14: K 1 (no. 171222), L 9 (no. 171266a)
- Pl. 15: C 10 (nos. 171040b, c), C 12 (no. 9120), H 4 (no. 171049), J 7 (no. 9120), L 5 (LMO)
- Pl. 16: A 6 (no. 171266b), L 12 (nos. 171040b, c, 171220)

III. Yellow-to-green: grass, reseda, hunter, yew, etc.
- Pl. 21: J 4 (nos. 171266a, b)
- Pl. 22: I 1 (no. 171216)
- Pl. 23: E 5 (nos. LMO, 171040b, c, 171216, 171266b)
- Pl. 24: A 6 (no. 171216), A 7 (LMO), E 11 (no. 171216), L 1 (no. 170465a), L 2 (no. 9120)

IV. Green-to-blue-green: poplar, spruce, etc.
- Pl. 31: C 7 (no. 171222), C 8 (no. 171050), H 6 (LMO)
- Pl. 32: H 9 (no. 171220), J 6 (nos. 171040b, c, 171266a)

* Notation follows that of Maerz and Paul's *A Dictionary of Color*. The "white" of natural wools (10 B 1) is not entered in table. Plate numbers refer to the plates of Maerz and Paul's *Dictionary*.

TABLE 2 (cont.)

Nazca embroidery yarns matching Maerz and Paul's color samples

V. Blue-green-to-blue: teal, navy, balsam, etc.
Pl. 38: J 2 (no. 171216)
Pl. 39: E 4 (no. 171220), H 3 (nos. LMO, 171040b, c, 171220, 171222, 171266a), J 6 (LMO)
Pl. 40: E 3 (no. 171049), H 5 (no. 171222), H 9 (no. 171216), H 10 (no. 171220), J 6 (no. 171216), J 8 (no. 171266b), L 4 (LMO), L 12 (LMO)

VI. Blue-to-red: dahlia, heliotrope, mauve, slate, egg plant, raisin, etc.
Pl. 43: H 5 (no. 171266a)
Pl. 44: B 2 (no. 171216)
Pl. 46: D 2 (no. 171222), D 6 (no. 170465a), G 4 (no. 170465a), H 5 (no. 171266b)
Pl. 47: H 4 (nos. LMO, 171050)
Pl. 48: E 10 (no. 9120), H 2 (no. 9120), L 12 (LMO)

VII. Purple-to-red: old lavender, orchid, magenta, burgundy, etc.
Pl. 56: C 5 (no. 171216)

"Black," darker than printed color samples:† (nos. LMO, 171104b, c, probably also 171054, 171216)

† "Black," rarely a true black; most nearly matches the darkest brown (16 L 12), green (32 L 12), blue (48 L 12), or purple (56 L 12).

The relative frequencies of the number of yarn swatches (350) matching these light, medium, and dark color samples for groups 1 and 2 are as follows:

1. 78 (light) : 72 (medium) : 200 (dark) : : 22% : 21% : 57%
2. 24 (light) : 18 (medium) : 68 (dark) : : 22% : 16% : 62%

There can be little doubt that Nazca embroiderers of the Early period favored dark, rich colors. The question as to which of these colors were high on the list can be answered only on the evidence of the few available specimens, but the frequencies summarized in Tables 3 and 4 are suggestive of partiality to certain of them. The rarest of these colors are the purplish reds similar to mauve. Cahuachi mantle 171222 has a diagonal line of flower motives in mauve, and to the left of the mauve flowers a line of red flowers centered with

TABLE 3

Frequency distribution of colors of Early Nazca wool embroidery yarns on matching swatches with Maerz and Paul's color samples

R to O *Pls. 1-8*			*O to Y* *Pls. 9-16*			*Y to Gr* *Pls. 17-24*			*Gr to Bl Gr* *Pls. 25-32*			*Bl Gr to Bl* *Pls. 33-40*			*Bl to P* *Pls. 41-48*			*P to R* *Pls. 49-56*		
Pl. nos.	*No. hues*	*No. spec.*	*Pl. nos.*	*No. hues*	*No. spec.*	*Pl. nos.*	*No. hues*	*No. spec.*	*Pl. nos.*	*No. hues*	*No. spec.*	*Pl. nos.*	*No. hues*	*No. spec.*	*Pl. nos.*	*No. hues*	*No. spec.*	*Pl. nos.*	*No. hues*	*No. spec.*
Light Colors																				
1	2	4	9	—	—	17	—	—	25	—	—	33	—	—	41	—	—	49	—	—
2	—	—	10	2	2	18	—	—	26	—	—	34	—	—	42	—	—	50	—	—
3	1	1	11	3	3	19	—	—	27	—	—	35	—	—	43	1	1	51	—	—
4	3	5	12	5	7	20	—	—	28	—	—	36	—	—	44	1	1	52	—	—
Medium Colors																				
5	5	10	13	5	6	21	1	2	29	—	—	37	—	—	45	—	—	53	—	—
*Dark Colors**																				
6	3	4	14	2	2	22	1	1	30	—	—	38	1	1	46	4	4	54	—	—
7	1	1	15	5	6	23	1	5	31	3	3	39	3	8	47	1	2	55	—	—
8	3	3	16	2	4	24	5	5	32	22	4	40	8	8	48	3	3	56	1	1

* "Black" wools found in three embroideries raises the total number of hues from 78 to 79 and the total number of specimens from 107 to 110.

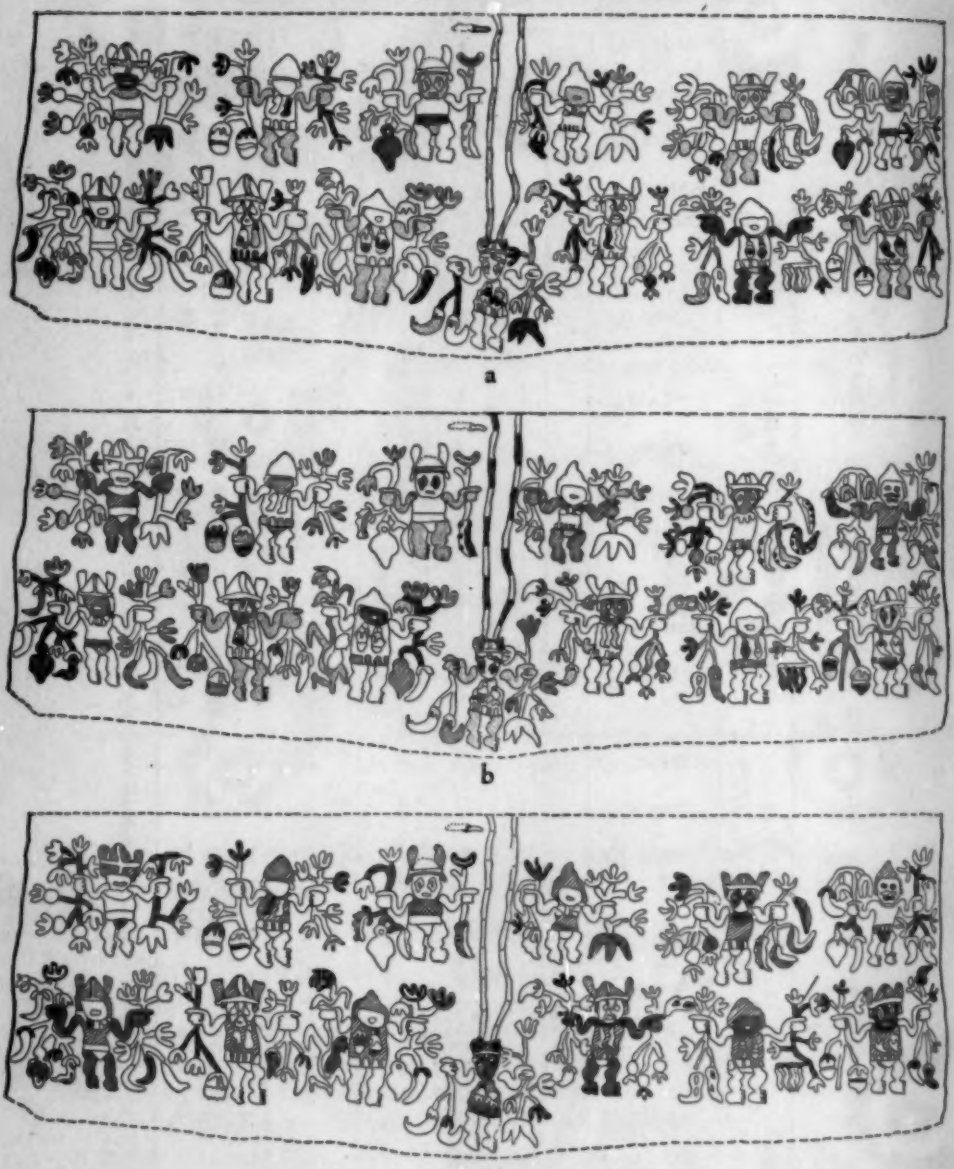


FIG. 2. Distribution of colors in the Nazca shirt: a, reds (stippled) and purple (cross-hatched); b, blues (hatched), greens (stippled), and blacks (cross-hatched); c, ivory white, yellow, or buff (hatched) and orange (cross-hatched).

TABLE 4

Summary tabulation of hues represented by Early Nazca embroideries

	Hues represented			*Specimens matched*		
	Light	*Medium*	*Dark*	*Light*	*Medium*	*Dark*
Red-to-orange	6	5	7	10	10	8
Orange-to-yellow	10	5	9	12	6	12
Yellow-to-green	—	1	7	—	2	11
Green-to-blue-green	—	—	5	—	—	7
Blue-green-to-blue	—	—	12	—	—	17
Blue-to-red	2	—	8	2	—	9
Purple-to-red	—	—	1	—	—	1
"Black"	—	—	1	—	—	3

purple spots.[8] The flowers are unusually large areas of a single color. Figure 2a shows the distribution of light and dark reds and purple in the embroidery on the Nazca shirt. Some purple was used in each of the men figures, the smallest amounts in Numbers 5 and 8, the largest for the body parts of Number 12.

Figure 2b shows the distribution of four blues, three greens, and an olive which belongs to the Orange-to-Yellow family but gives the impression of being green. Two blacks are also entered on the figure. These several colors are used for arms, hands, legs, and feet, for garment details, and for different parts of the crop plants. The balance of amounts is fairly equal although the blues and especially the teal blue are dominant owing to their richness.

Figure 2c shows the amounts of natural color white wool used in the shirt. All the caps and ten of the thirteen tunics on this half of the embroidery are in ivory white. The orange wool has been treated as a dyed yarn although it, too, may be natural-color vicuna. Orange, used more sparingly than white, appears in small areas in all the men figures, for the faces of Numbers 11, 12, and 13, and for the visible body parts of Numbers 7 and 10. These last two men figures have more colors in common than do any of the others in this fragment.

8 See *Textile Periods*, fig. 5.

Design Motives in Early-Period Embroideries

Color rather than styles of patterning or design motives is the common denominator of the embroidered cottons in this Early-period group. The number of colored wools in the various pieces ranges from one through fifteen, but as seen from the brief descriptions given below, there appears to be no correlation between the color choices made and the style of patterning developed. For example, the Nazca shirt with its semi-realistic representation of agriculturalists and crop plants has a total of fourteen hues not counting the natural-color cream wool, and Nazca kerchief 9120 with an allover of crosses and rectangular spots has eleven.

From lowest to highest, the color counts are as follows:

One-color embroidery

Cantayo kerchief (?) 171045: allover step-fret pattern in dark brown yarn (*Textile Periods,* pl. 8c; *Early Nazca,* pl. 55b).

Four-color embroideries

Majoro mantle 170465a: originally a two-breadth garment, has narrow side border of animal figures (llamas?). Part way across finished end are two rows of bird forms. Embroidery wools include two purple yarns both of them characteristic of textiles from Early-period sites in Nazca valley (*Early Nazca,* pl. 57e).

Cantayo trimming band 171049: width slightly over one inch. Centered by line of motives similar in appearance to catfish (*Textile Periods,* fig. 3; *Early Nazca,* pl. 57b).

Cantayo trimming band 171054: small, fragile bits of cotton embroidered in two reds, orange, black. Condition poor.

Six-color embroideries

Cantayo trimming band 171050: centered by line of slanting block-S forms (serpents?) about one half inch high. Evidence of maintained sequence of colors, a feature less frequently occurring in available Nazca embroideries than in comparable textiles from Paracas Necropolis (*Early Nazca,* pl. 57d).

Eight-color embroideries

Cahuachi mantle 171222: remnants of one-breadth weaving 50 inches long by 41.5 inches wide. Fragment allover patterned in open-flower forms each 5 inches high by 3 inches wide. Planned color harmony is manifest in the maintenance of two sequences, one in the colors of the flower petals, the other in the flower centers. Purple yarn conspicuous in development of one diagonal row of flower forms with yellow centers and in centers in the neighbor row of red flowers to left (*Textile Periods,* fig. 5; *Early Nazca,* pl. 59a).

Cahuachi trimming bands 171140 b, c: many small embroidered bits of disintegrating fabric representing fine quality of Early Nazca workmanship. Motives

include monsters with protruding tongues, bird forms, rows of lima beans (*Textile Periods*, fig. 2; *Early Nazca*, pl. 57a).

Nine-color embroidery

Cahuachi veil 171266a: small rectangular motives with lines extending horizontally form edge border. No indication of repeated sequence (*Early Nazca*, pl. 60c).

Eleven-color embroideries

Cahuachi mantle 171220: largest and most important textile in Early Nazca series. Patterning apparently accomplished by brocading supplemented by embroidery. Latter technique employed in certain of bird forms and in finials out from main rectangular motives (*Textile Periods*, pl. 1a-c; *Early Nazca*, pls. 33 [in color], 49-52).

Cahuachi child's tunic 171266b: patches of small solidly embroidered rectangles in rows across the shoulders; rows alternately red and brown. Narrow applied bands edging tops of armscyes have monster heads, floral and vegetable (?) forms in all familiar Nazca colors (*Textile Periods*, pl. 2c; *Early Nazca*, pls. 34c, 56a-c).

Nazca kerchief 9120: allover pattern of solidly embroidered crosses and rectangles more or less casually spaced and set in rows. No color sequence; several motives show two colors. Dyed wools include two purples (*Early Nazca*, pl. 55a).

Fifteen-color embroidery

Cahuachi mantle 171216: single-breadth weaving 57 inches long by 47.5 inches wide. Motive in each corner a warrior (?) figure approximately five inches tall holding a staff or weapon. The details of this Cahuachi mantle are similar in several respects to those of the Nazca shirt. Each specimen is embroidered in an unusually large number of colored wools (15 and 14 respectively), and each is conspicuous for the many small areas into which the costumes and accessories are divided.

The mantle, unlike others I have analyzed, has a top and bottom, as indicated by the orientation of the standing figure in each corner. All warriors wear some garments. Two of them wear similar headdresses, and one wears a tunic long enough to cover all but the lower tip of the breechclout. The other three figures are naked above the clout and a belt (?) although two of them wear broad bands crossing the body from the left shoulder to under the right arm. Each warrior carries ceremonial staves or weapons in his hands in much the same way as the agriculturalists carry their crop plants. All four figures wear earplugs, and the face of the most completely clothed warrior is diagonally banded with a half dozen stripes of paint. Two of the headdresses show more than twenty small zones of color, and some of the staves almost as many.

Costumes on the Nazca Shirt

There is one handicap to a complete analysis of the Nazca shirt. The tracings of the half comprising Men Figures 1 to 13 were done on cellophane directly from the cloth; the tracings of Mrs Hallett's portion, comprising Men

Figures 14 to 26 were made from a hastily rendered tracing of her fragment which Yacovleff had used as a reminder of certain details.

Although the Nazca shirt represents less stylization and greater attention to garment detail than does the Cahuachi warrior mantle (171216), the main parts of the costumes embroidered on the two textiles—headdresses, shirts, and breechclouts—have similar features. Variations, chiefly ornamental, occur in the tunics.

The caps are of two types: a simple peaked cap of solid color with extensions similar to earlaps down from the rim; and a second peaked type with extensions both directly above the ears and down over them. On this second type there is a relatively wide edge band and a central vertical stripe, the two contrasting with the color of the cap proper. Man 3 has a blue band on his cap, (the upright stripe is missing from the fragment), but all the other men's caps have red bands and stripes.

With one exception (Man 7), peaked caps and caps decorated with crosses alternate regularly both horizontally and vertically (Fig. 1). Maintained sequences of shapes, sizes, or colors, sometimes of all three features, are characteristic of Peruvian weavings and embroideries.

Tunics, the longest of which measures approximately one and one-fourth inches by one inch wide, have from one to three decorative features. Most tunics contrast in color with that of the bare arms, legs, and feet. Man 1 (blue) and Man 6 (green-blue) are exceptions.

The simplest tunics, like those on Men 3, 6, and 18, have trimming bands only at their lower edges. A few bands are plain and of some depth like those on Men 1, 3, 7, 18, and 19. Most of the lower trimmings, however, suggest tabs. These are standard edge finishes for Early-period textiles from Paracas Necropolis, but one cannot be certain what the Nazca embroiderer meant by her rendering.

The majority of the men figures wear tunics with a narrow or a wide circular band around the neck. Some of the neck bands are plain like those on Men 1, 11, 12, 24 (?), and 25. Other neck bands appear to have been embroidered in several colors or perhaps formed of tabs as shown on Men 4, 5, 7.

The most elaborate tunics have, in addition to bands at top and bottom, breast decorations in the form of plants. These may represent embroidery on the tunics or perhaps actual plants worn like pendants. The plant forms on the tunics of Men 10, 11, and 12 are sufficiently well rendered to make their identification possible (see the second part of the present paper).

Several other motives, also occur: a remnant of a motive (Man 14), a tab-

like motive (Man 15), crossed bands ending in circular spots (Man 17), an arrangement of coin spots on each shoulder (Man 21), and a lunette form ending in buds or pods (Man 24).

The breechclout shows as a small triangle of color in contrast to that of the tunic on all the men figures with the exception of Numbers 9, 13, 21, and 22.

About half of the faces are embroidered in solid color with little or no attempt to indicate eyes and mouth. Men Figures 2, 15, 17, 20, 22, and 24 have featureless faces. Men Figures 1, 4, 7, 9, and 11 had mouths and eyes presumably embroidered in dark brown or black yarn. These yarns have disintegrated, revealing the cotton foundation material.

The remaining men figures still show remnants of features and some have marks representing face painting. The several shapes emphasizing the area around the eyes are most conspicuous. Ten men figures have painted ovals, lozenge forms, or crosses enlarging the eyespot. Men 6 and 16 have painted bars, and Men 8 and 10 have X-forms marking their faces. All these representations of paint marks are done in colors contrasting with the face colors.

The faces, in turn, are embroidered in colors contrasting with those in which the arms, legs, and feet are embroidered. Obviously, there was no attempt at realism. Dr Whitaker comments below on the fact that the plants were rendered in colors without regard for the natural ones. Another detail is noteworthy: pairs of colors are not repeated. In many Peruvian textiles, a pair or trio of colors remains a unit throughout the patterning. In one motive, for example, Color A may cover a large area, Colors B and C may be subordinate to it. In a neighboring motive, the color emphasis may shift to Color B while Colors A and C play minor parts. In this Nazca shirt, the embroiderer combined dark red, to mention only one, with dark green, with dark green-blue, with teal blue, and with yellow beige, but she did not repeat the sequence nor permutate these colors in the other figures.

The colors used to represent the face, paint marks, and limbs are as follows:

Men Figures	*Face color*	*Paint marks*	*Limbs*
1	purple (47H4)[9]	—	green-blue (40L4)
2	blue (39J6)	—	red (6L6)
3	red (6L6)	green-blue (40L4)	green (24A7)
4	red (6L6)	—	green-blue (40L4)
5	blue (39J6)	beige (13H7)	red (6L6)
6	rose (5K9)	green-blue (40L4)	blue (39J6)

9 Numbers in parentheses refer to the plates of Maerz and Paul, *Dictionary of Color.*

7	blue (39J6)	—	beige (13H7)
8	green-blue (40L12)	rose (5K9)	green (24A7)
9	"black"	—	rose (5K9)
10	green-blue (40L12)	rose (5K9)	beige (13H7)
11	beige (13H7)	—	purple (47H4)
12	beige (13H7)	green-blue (40L4)	red (6L6)
13	beige (13H7)	green-blue (40L4)	blue-green (31H6)

Information on the colors in Mrs Hallett's half of the Nazca shirt is not available.

Weaving and Embroidery Techniques

The texture of a plain-weave fabric is to some extent indicated by the compactness of the weave stated in terms of thread count, the number of warp and weft elements per unit of measurement. Creped yarns produce a texture less accurately described by count, but since only one embroidered Cahuachi piece (171222) has super-twisted weaving elements, the counts are reliable criteria for the lot.

In terms of the number of warps per inch, the counts range from 24 through 58 per inch, and the wefts from 24 through 32 per inch. The order of thread counts from coarsest to finest materials is as follows:

Cahuachi	171045	24	warps	by	24	wefts
"	171216	28	"	by	34	"
"	171226	28	"	by	26	"
"	171222	28	"	by	24	"
"	171140b	32	"	by	32	"
"	171140c	32	"	by	32	"
"	171266b	32	"	by	30	"
Nazca	9120	34	"	by	26	"
Cahuachi	171266a	38	"	by	32	"
"	171049	38	"	by	24	"
"	171050	42	"	by	34	"
	L.M.O.	56	"	by	32	"
Cahuachi	170465a	58	"	by	32	"
"	171054	deteriorated base fabric				

The Early-period embroideries at Nazca as well as at Paracas appear to have been woven with the customary lengths of the stitches in mind. That is, for

the particular type of embroidery in which most motives were developed, the thread was floated over two, or four, or occasionally six weaving elements. The finer embroideries are worked on finer foundation materials but the number of threads floated over are within the same narrow range.

The weaving yarns, all cottons, are two-ply. All the embroidery yarns are wool. These vary in number of ply and degree of twist. The wools in the Cahuachi flower mantle (171222) and those in the fragile Cahuachi veil (171266a) are single ply. Some of the wools in a second mantle from Cahuachi (171216) are two ply, some single ply. These two types are also found in the Nazca shirt. Certain of the green motives are worked with single ply; others of the same color are worked in two-ply. The same is true for a few of the dark blue, the orange, and the purple motives. The greater part of the embroidery is done with two-ply yarns. Most of them were spun slack or medium twist.

Design motives on the Nazca textiles in this study are accomplished by one of three simple techniques listed in order of their frequency: the stem or crewel stitch, double running (the ancient punto scritto), and tent stitch. All these in their elemental forms are line stitches. To make them also serve as filling stitches, the embroiderer worked lines back and forth across color areas, keeping the lines close set.

Ordinarily, as stated above, the thread for the stem stitch is carried over two, four, or other even number of weaving elements to form the surface float. Then the thread is passed back under the one, two, or other number representing half the number of elements floated over. This procedure is comparable to wrapped weaving in basketry. If on successive rows the thread is kept always above (or below) the needle, the surface of the embroidered motive has the appearance of a twill-woven fabric which has been appliqued to a basic plain-weave web. This is the effect achieved by the embroiderers of the Nazca shirt and of several other textiles in the Early Nazca lot.

If the embroidery thread on the odd-numbered lines is thrown above the needle, and on the even-numbered lines it is thrown below the needle, the counterpairing in itself produces a semblance of pattern as in Cantayo 171054. A third possibility, throwing the thread above on the first stitch, below on the second, above on the third, and so on, gives the color areas a slightly rough texture. This variation is used for small details to contrast with those done in the smooth "twill" type of stem-stitch filling.

Lines of double running stitches, occasionally left slack to cover the basic weft, were also used for solid-color areas. Double running technique produces a reversible pattern, since the spaces left between the running stitches on any

single line are covered by the stitches on the next line. Variations of double running occur in Majoro 170465a, Cahuachi 171216 and 171266a. Usually stem-stitch embroidery appears for some details whatever other type of stitchery is dominant.

The flower mantle, Cahuachi 171222, is allover embroidered in tent stitch, a technique familiarly known as the simple hemming stitch.

One other embroidery technique, needleknitting, occurs on the Nazca shirt. Needleknitting has special values as an edge binding: it strengthens and it is decorative. The shirt has a Kelim slit for neck opening, a familiar type on Paracas and Early Nazca garments. The needleknitting which reinforces the Kelim edges of the shirt is done in blocks alternately black (?) and red. Binding of the same type done around small tabs among the embroidered fragments numbered Cahuachi 171140 b, c is monochrome. A second three-dimensional type of needleknitting is best known as the technique of the celebrated bird-flower fringes on Nazca veils and shawls and of the multiple-figure edge trimming on the so-called Paracas mentle.[10] On these pieces the embroidery serves to veneer the surface of foundation forms or cores produced by other techniques. Men Figures 13 and 26 on the Nazca shirt have heads done in needleknitting. The bodies and costumes are similar to those of the other men figures.

Conclusions

One cannot avoid comparing the Early Nazca embroideries with those from the Necropolis at Paracas. The Paracas embroideries, widely known through published photographs and descriptions, are distinguished by many show pieces impressive in size and composition. Their motives have a sumptuous quality developed in rich polychrome sequences.

The published embroideries from Early Nazca sites suffer by comparisons based on these aspects. The excavated material, much of it fragmentary, has few dramatic features. The embroideries in the lot reported on in this paper are few and little known. They have, however, certain elements in common with the fabrics from the Necropolis.

Technically speaking, wool-embroidered cottons from Nazca and Paracas graves reveal equally well-spun yarns and uniformly good base fabrics. Other standards of workmanship evidenced by textiles from the two sites are also comparable. The actual number of stitchery techniques is small. The embroiderers in both localities relied almost exclusively on simple stitch units but endless repe-

10 O'Neale, *Peruvian "Needleknitting."*

titions of these achieved an almost mechanical perfection. The color areas resemble patches of appliqued cloth.

Conventions and tastes appear to have been more firmly established at Paracas than at Nazca, although this interpretation may be the result of my acquaintance with a considerably larger sample of Necropolis embroideries than is available from the southern sites. Virtually the same colors are found in the embroidery wools at the two places, yet the effects achieved by the Paracas embroiderers are markedly different from those achieved at Nazca. Style is partly accountable for these. The men figures on the Nazca shirt, for example, were apparently worked as individual units. The placing of each one, the position of the hands and arms, and the relatively equal sizes of the crop plants held by the men are formal elements in the composition. The Paracas embroiderer might not have been permitted so many variations in details but she would have introduced variety in the position of the motives. The Nazca embroiderer in the main disregarded colors in sequences; by contrast, the Paracas embroiderer with even a few colors gave the effect of many through permutations.

The most noteworthy relationship between the embroideries from the two Early sites is the stylistic one. The similarities to the designs on Early Nazca pottery leaves "little doubt of a common origin."[11]

II. A NAZCA EMBROIDERY WITH AN IDENTIFICATION OF THE CROP PLANTS

(*By* THOMAS W. WHITAKER*)

The piece of embroidery which is the subject of this study undoubtedly represents an attempt to picture some of the principal food crops of the time.[12] From this viewpoint the identity of these plants should be of extreme interest to persons concerned with the origin and domestication of crop plants.

Ten species have been recognized: *Arachis hypogaea* L.; *Capsicum frutescens* L.; *Lucuma obovata* HBK.; *Manihot utilissima* Pohl.; *Pachyrrhizus tuberosus* (Lam.) Spreng.; *Phaseolus lunatus* L.; *P. vulgaris* L.; *Polymnia sonchifolia* Poepp. & End.; *Psidium Guajava* L.; *Zea mays* L. These species are distributed among seven different families.

The accuracy with which the plants can be identified remains a matter of personal opinion. However, after careful evaluation of all pertinent evidence, I

* Fellow, John Simon Guggenheim Memorial Foundation, 1946-47.

11 *Textiles of the Early Nazca Period*, p. 128.

12 See Yacovleff and Herrera, p. 252.

feel fairly certain that the determinations are accurate, with the possible exception of two cases (1, L, and 7, R). The work of Yacovleff[13] and Yacovleff and Herrera[14] has provided a helpful background, without which it would have been impossible to make the determinations. Sauer's important study[15] of the cultivated plants of South America has made available a large body of information from which the validity of the determinations could be checked.

Climate and Geography

The Nazca valley is located in the region known to archaeologists as the South Coast of Peru. It is a warm, dry, desert area consisting of fair sized valleys, watered by rivers, many of which are of semi-permanent nature. The soils are of more than average fertility. It is probable that in pre-contact times there was sufficient water to support a thriving agriculture, providing the inhabitants had some knowledge and understanding of irrigation. The location from which the present subject was recovered is approximately 25 miles from the coast, at an altitude of not more than 50-200 feet above sea level.

Characteristics of the Reproductions

With the exception of certain conventionalisms, the reproductions are probably as faithfully executed as could be attained with the techniques employed. A conventionalized, three-pronged, digitate structure is used to symbolize the flowers and leaves of all plants except corn. On the other hand, the long, narrow, strap-like blade of the corn leaf is depicted in a fairly lifelike manner. Similarly, the branching tassel of maize is an excellent reproduction.

A conventional, rounded type of stem, 1 mm to 4 mm in width, has been used for all plants. In some cases different colored thread portrays stems of various species. There is reason to doubt that this practice had a biological basis. No attempt has been made to depict the root system as such.

If we base our analysis on the complete textile (see Table 5) each species is represented at least two times, and where duplications occur, they are never precise images of each other. This probably means that the figures were executed from different plants of the same species, possibly over a period of time.

Cultural Significance of the Plants

As one could predict, knowing something of the climate and location of the area, all of the plants pictured are crops of temperate, or tropical, lowland origin.

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13 Yacovleff, *La Jiquima.*
14 *El Mundo Vegetal.*
15 *Cultivated Plants.*

TABLE 5

A functional analysis of the crop plants pictured in the textile*

	Species	*Number of duplications*
Fruit crops	*Capsicum frutescens*	9
	Lucuma obovata	5
	Psidium Guajava	8
Total		22
Percentage of fruit crops		46%
Root crops	*Manihot utilissma*	4
	Pachyrrhizus tuberosus	6
	Polymnia sonchifolia	3
Total		13
Percentage of root crops		27%
Seed crops	*Arachis hypogaea*	5
	Phaseolus lunatus	4
	Phaseolus vulgaris	2
	Zea mays	2
Total		13
Percentage of seed crops		27%

* This table has been compiled from the complete textile. Tracings only were available for Man Figures 14-26 inclusive. The plant symbol of Man 2(R), Man 6(R) with a dual representation, and Men 19(R) and 26(L) (disintegrated) have been omitted from the computations. Likewise, the plants represented on the chest of the human figures have not been included.

Crops characteristic of the adjacent Andean highlands are entirely absent from the textile.

The frequency with which the different plants are pictured might be expected to give some clue to their importance in the food economy of the culture with which they are associated. However, the high, disproportionate occur-

rence of the fruit crops (46%, see Table 5) may simply mean that they were common, colorful, decorative, and easy to reproduce in embroidery. The frequent occurrence of the starchy root crops, yuca (manioc), jicama (yam bean), and yacon *(Polymnia sonchifolia)* may be of significance, and probably indicates that the inhabitants were heavily dependent upon them for their chief source of carbohydrates. The seed crops—corn, beans, and peanuts—were evidently commencing to play an important role in the food requirements of these peoples.

If the above speculations are indicative of the actual conditions as they existed at the time the textile originated, it points to a relatively old culture, which had probably arrived at the intermediate, or transition zone, between one depending almost entirely upon the starchy root crops, and the later maize-bean-cucurbit complex that succeeded it.

The absence of certain food plants such as the cucurbits, the potato, sweet potato, and the surprisingly weak representation of corn, is rather unexpected, and may have some meaning for the distribution in time of these crops. In the case of the cucurbits there is evidence that *Cucurbita maxima* was present at levels equivalent to that from which the textile of the present study was taken. Carter[16] has identified seed of *C. maxima* from the Proto-Nazca level. This piece of information can best be interpreted by assuming that *C. maxima,* while present, had not yet become an important item in the diet of these peoples.

The absence of the potato probably means that this crop was a later introduction into the area, and adds some support to Sauer's hypothesis[17] that the cultivated potatoes in this region of South America are best interpreted as an intrusive element into an older agricultural pattern. The most likely explanation for the absence of the sweet potato is that it was domesticated in the Carribean area and eastern South America, and had not yet reached the area in question.

In conclusion it should be mentioned that actual plant remains, classified as Proto-Nazca, have been recovered of nearly all of the plants pictured on the textile, with the exception of the guayaba *(Psidium Guajava),* lucumo *(Lucuma obovata)* and yacon *(Polymnia sonchifolia).*[18]

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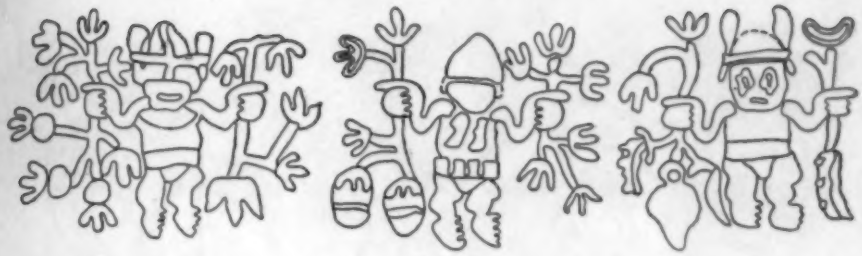
16 *Some Archaeologic Cucurbit Seed.*
17 *Cultivated Plants.*
18 See Yacovleff and Herrera, *El Mundo Vegetal.*



1

Left (Reader's left)
Psidium Guajava L.
guayaba
guava

Right (Reader's right)
Manihot utilissima Pohl.
yuca, rumu
cassava

2

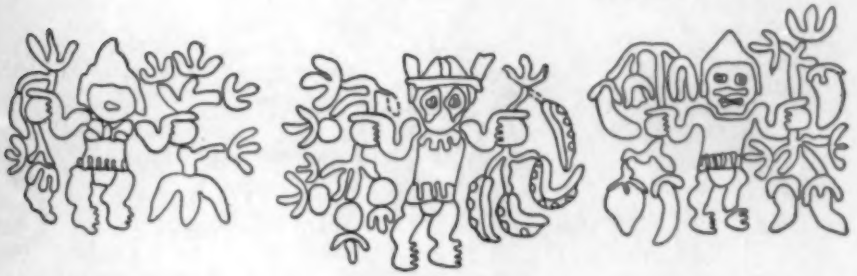
Left
Lucuma obovata HBK.
lucumo, rujma
egg-fruit

Right
An artifact, probably symbolizing a plant

3

Left
Pachyrrhizus tuberosus (Lam.) Spreng.
ajipa, jicama
yam bean

Right
Phaseolus lunatus L. (pod with 3 seeds)
pallar
lima bean



4

Left
Capsicum frutescens L.
chinchi, aji
pepper
(The upper fruit does not show the characteristic adhering sepals)

Right
Manihot utilissima Pohl.
yuca, rumu
cassava

5

Left
Psidium Guajava L.
guayaba
guava

Right
Phaseolus lunatus L.
pallar
lima bean
(4 pods, 2 with 3 seeds each, 1 with 5, 1 with 4 seeds)

6

Left
Pachyrrhizus tuberosus (Lam.) Spreng.
ajipa, jicama
yam bean

Right
Probably two plants represented: upper right, fruit of *Capsicum frutescens* L.; lower portion, 2 pods of *Pachyrrhizus tuberosus* (Lam.) Spreng.

7

Left
Pachyrrhizus tuberosus (Lam.) Spreng.
ajipa, jicama
yam bean

Right
Phaseolus vulgaris L.
frijol
common bean, kidney bean, snap bean

8

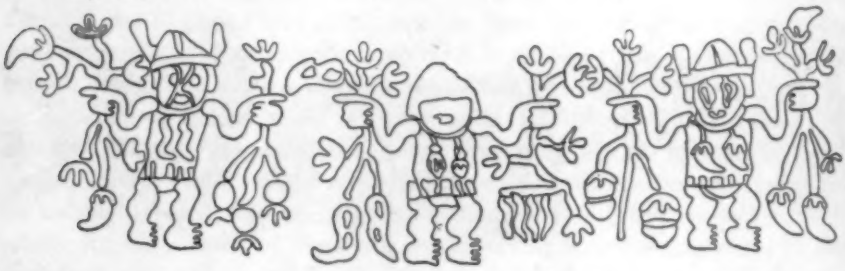
Left
Lucuma obovata HBK.
lucumo
egg-fruit

Right
Capsicum frutescens L.
aji
pepper

9

Left
Zea mays L.
sara, maiz
corn

Right
Pachyrrhizus tuberosus (Lam.) Spreng.
ajipa, jicama
yam bean



10

Left
Capsicum frutescens L.
aji
pepper

Right
Psidium Guajava L.
guayaba
guava

Center
Polymnia sonchifolia Poepp. & End.
yacon, aricona

11

Left
Arachis hypogaea L.
inchis, mani
peanut

Right
Polymnia sonchifolia Poepp. & End.
yacon, aricona

Center
Pachyrrhizus tuberosus (Lam.) Spreng.
ajipa, jicama
yam bean

12

Left
Lucuma obovata HBK.
lucumo
egg-fruit

Right
Capsicum frutescens L.
aji
pepper

Center
Capsicum frutescens L.
aji
pepper

14

Left
Lucuma obovata HBK.
lucumo, rujma
egg-fruit

Right
Capsicum frutescens L.
aji
pepper

15

Left
Arachis hypogaea L.
inchis, mani
peanut

Right
Polymnia sonchifolia Poepp. & End.
yacon, aricona

16

Left
Phaseolus lunatus L.
pallar
lima bean

Right
Psidium Guajava L.
guayaba
guava

17

Left
Psidium Guajava L.
guayaba
guava

Right
Phaseolus lunatus L.
pallar
lima bean

18

Left
Pachyrrhizus tuberosus (Lam.) Spreng.
ajipa, jicama
yam bean

Right
Capsicum frutescens L.
aji
pepper

19

Left
Arachis hypogaea L.
inchis, mani
peanut

Right
?

20

Left
Zea mays L.
sara, maiz
corn

Right
Psidium Guajava L.
guayaba
guava

21

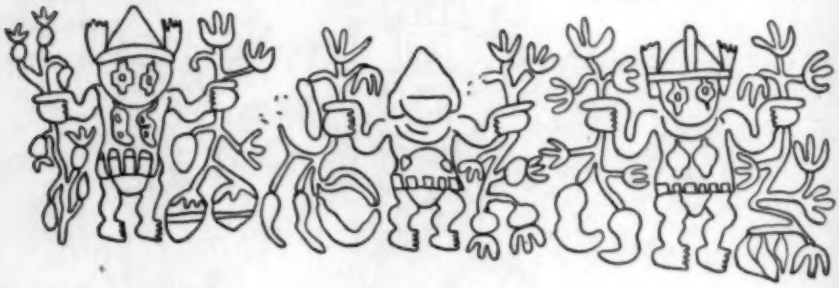
Left
Capsicum frutescens L.
aji
pepper

Right
Arachis hypogaea L.
inchis, mani
peanut

22

Left
Manihot utilissima Pohl.
yuca, rumu
cassava

Right
Capsicum frutescens L.
aji
pepper



23

Left
Psidium Guajava L.
guayaba
guava

Right
Lucuma obovata HBK.
lucumo, rujma
egg-fruit

24

Left
Phaseolus vulgaris L.
frijol
common bean, kidney bean, snap bean

Right
Psidium Guajava L.
guayaba
guava

25

Left
Arachis hypogaea L.
inchis, mani
peanut

Right
Polymnia sonchifolia Poepp. & End.
yacon, aricona

13
Center front

Left
Capsicum frutescens L.
aji
pepper

Right
Manihot utilissima Pohl.
yuca, rumi
cassava

26
Center back

Left
Zea mays. L. ?
sara, maiz
corn

Right
Pachyrrhizus tuberosus
(Lam.) Spreng.
ajipa, jicama
yam bean

Notes on Identification

In the following section we have summarized the principal considerations used as a basis in making a decision as to the identity of a particular species.

Psidium Guajava L. –guava

Man 1 (L); Man 5 (L); Man 10 (R); Man 16 (R); Man 17 (L); Man 20 (R); Man 23 (L); Man 24 (R)

The globose fruits, crowned with persistent calyx lobes are strongly suggestive of the guava. Furthermore, the guava is a common tropical plant, and is indigenous to that portion of South America where the site is situated.

Manihot utilissima Pohl. –cassava

Man 1 (R); Man 4 (R); Man 13 (R); Man 22 (L)

The enlarged, fleshy roots clustered at the base of the plant are characteristic of this species. Yacovleff and Herrera *(El Mundo Vegetal)* have placed a somewhat similar figure with this species.

Lucuma obovata HBK. –egg-fruit

Man 2 (L); Man 8 (L); Man 12 (L); Man 14 (L); Man 23 (R)

The globose fruit, sectored slightly below the center, and with persistent sepals are distinctive characteristics of this species. It is quite commonly reproduced in pottery (Yacovleff and Herrera, *op. cit.*). According to Safford, specimens of the

fruit, usually divided in halves, are frequently found in prehistoric graves of the coastal tribes of Peru.

Pachyrrhizus tuberosus (Lam.) Spreng. –yam bean

Man 3 (L); Man 6 (L); Man 7 (L); Man 9 (R); Man 11 (C); Man 18 (L); Man 26 (R)

The top-shaped, tuberous root and scimitar shaped pod serve to identify this species. The identification is confirmed by the work of Yacovleff *(La Jiquima)* and Yacovleff and Herrera *(op. cit.)*.

Phaseolus lunatus L. –lima bean

Man 3 (R); Man 5 (R); Man 16 (L); Man 17 (R)

The broad short pods with 3-5 seeds are the characteristic Proto-Nazca representation of the lima bean (see Yacovleff and Herrera, *op. cit*).

Capsicum frutescens L. –pepper

Man 4 (L); Man 8 (R); Man 10 (L); Man 12 (L, C); Man 13 (L); Man 14 (R); Man 18 (R); Man 21 (L); Man 22 (R)

The curved, pointed fruit, with an enlarged, persistent calyx serves to identify this species. The reproductions are similar to those pictured by Yacovleff and Herrera.

Zea mays L. –corn

Man 9 (L); Man 20 (L); Man 26 (L?)

The strap-shaped leaf, the terminal branching tassel, and authentic reproduction of the ear are positive evidence that these figures were designed to represent the corn plant.

Polymnia sonchifolia Poepp. & End. –yacon

Man 10 (C); Man 11 (R); Man 15 (R); Man 25 (R)

This close relative of the common dahlia can be identified by the characteristically elongated, curved, fleshy roots. This species is indigenous to the tropical and temperate regions of the west coast of South America.

Arachis hypogaea L. –peanut

Man 11 (L); Man 15 (L); Man 19 (L); Man 21 (R); Man 25 (L)

The reproduction on the textile resembles, in considerable detail, the peculiar two-celled, or two-humped peanut, recovered from Peruvian tombs.

Phaseolus vulgaris L. –bean

Man 7 (R); Man 24 (L)

The narrow, curved pod, without adhering sepals seems to represent the common snap bean.

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CULTURE GROUPINGS IN ASIA

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IN A RECENT NUMBER of this journal, Elizabeth Bacon has made a valiant and valuable first effort to classify the cultures of Asia in areal terms.[1] Wherever "culture areas" have been developed as useful conceptual tools, it has been essentially by gradual concord of opinion, even though there was also a definitive formulation, as by Wissler. It is in this spirit that I submit herewith a series of comments on Miss Bacon's findings, hoping that these may stimulate the reactions of others as she has stimulated me.

The comments are ordered in the sequence of her areas.

1. *Paleo-Siberian.* North Asia west of Altai and Yenisei is unaccounted for, except for a reference to reindeer breeding as now extending from the Pacific to Europe.

2. *Southwest Asian Sedentary.* This area is characterized about as expectable, with considerable continuity (mudbrick, barley) from 4000 BC to the present. Islam fits in as regards origin; but many more Mohammedans are now in Africa, India, and Indonesia than in the Near East. That is one trouble with ideas and religions in these areal classifications: they wander; while subsistence mechanisms mostly have difficulty traveling out of their environment. In *The Ancient Oikoumenê,*[2] I have tried to interpret Mohammedanism as a phenomenon of the class which Toynbee calls "etherealization," but for which a term like reduction by segregation would be more appropriate—at any rate less spiritually poetic. (The extrication of the alphabet out of the earlier system of mixed writing by segregation and reduction is an example.) Such a simplified ideology and set of values was perhaps the only effective reformulation that could be evolved in the area of the original hearth of higher civilization after four thousand years. At any rate, the Mohammedan reduction-formulation was successful not only in the hearth but on three continents wherever it entered feeble, arid, or undeveloped cultures. Therewith, to a certain degree, it carried Near Eastern culture as far as to Malaysia and to West African Negroes. All this is not a criticism of Miss Bacon, but an illustration of the difficulties inherent in areal classifications deal-

1 *A Preliminary Attempt to Determine the Culture Areas of Asia* (Southwestern Journal of Anthropology, vol. 2, pp. 117-132, 1946).

2 Journal, Royal Anthropological Institute, to be published (separates actually preprinted, 1946).

ing with cultures that possess a known history and are on markedly different levels. My "reduction" explanation tries to salvage something for the "culture area" approach when this floats on to the biggest rocks, as in the Near East.

3. *Pastoral Nomadic.* In a mapped classification of Asiatic cultures, there is no recourse but to recognize the pastoral belt. Yet the farming and part-farming communities within the belt render the pastoral designation highly inexact. It is even doubtful whether the nomads outnumber the farmers. Evidently their specialized and unstable life impresses our mind as so distinctive that we fail to consider the settled people in the same area. What we really have is a dichotomized culture, one pole of which is much like that dominant in adjacent areas; the other, pastoral. The purely pastoral part of the society does make the total culture distinctive as compared with more usual cultures which contain no such nomadic-pastoral element. Nevertheless, a mere nomadic segment of a society is not the same as a wholly nomadic society. The difference is of import both conceptually and in historic actuality. For instance, there is Lattimore's view that eastern nomadism is a secondary extension from mixed farming when this got into territory so near the environmental limit that it became more secure or profitable to abandon the double-barreled approach, move out into the steppe, and plump on animal-breeding with mobility. Whether this was actually "the" origin of east Asiatic pastoral nomadism, or of all pastoral nomadism, I do not know; and I suspect it cannot be either proved or disproved, at least not at present. But the mere fact that the view can be reasonably entertained shows that nomadism can theoretically be construed as a special derivative form of other cultures, and is not necessarily a basic form of culture in its own right. Seen in this way, pastoralism would be a part-culture. It would be a well-marked profession within cultures, something like smithing or doctoring, say, except for being raised to include a higher fraction of the total population and being more nearly self-sufficient. As a matter of fact, I doubt whether any pastoral nomad group is wholly pastoral even as regards its subsistence. No doubt some of them might be, if necessary; but it is certainly not usual, and the exclusively herding life would certainly be narrow and meager, except so far as it might be enriched by plunder.

In short, I submit that there is considerable reason for regarding pastoral nomadism not as a complete culture but as a culture facies; much like the river-boat-dwelling sector of the South Chinese population or like the Orang Laut among the Malay, to whom no one has yet given a separate color on a culture-area map. Incidentally, if one proceeded to actual, accurate mapping of the area

of pastoral nomadism, difficulties of representation would at once appear. These difficulties ought to suggest that this culture is not conceptually coördinate or equivalent with others. The Arab Ruwala in Arabia would be "Pastoral Nomadic," but Arab Mecca and Yemen in Arabia would be "Near Eastern Sedentary." And the Nomadic area would have to be stretched beyond Asia to Morocco, if the concept were valid.

This is not in stricture of Miss Bacon, who has merely taken over a concept that is current, but which I believe needs either validation or correction.

4. *Chinese Sedentary.* No comment needed.

5. *Southeast Asia and Indonesia.* The definition of this area is hazier than need be. South China is more or less included by implication (p. 125), and then there seems to be a theory of origin in central China (p. 128).[3] The latter theory seems highly speculative. No evidence is outlined. The view is perhaps a reflection of Heine-Geldern's.

Actually there is enough solid and clear-cut basis for a Farther Indian-East Indian culture area to render complicating speculations unnecessary. From Assam to the Philippines and Lesser Sundas the surviving pagan cultures have long been recognized as presenting many marked resemblances. There is plenty of local diversity, but it seems not so much intrinsic variation as due to the survival of the old general culture only in spots between the invasion and spread of literate cultures, which took up all the larger and fertile plains and coasts. Considering the scattered localization of the pagan, pre-historic culture today, and the length of time since disruption of its continuity, the variability is not at all excessive.

The overlays and intrusions are as follows. In south China (central China does not belong and probably never did), in Tongking, and, since some centuries, in Annam and Cochin China: Chinese culture. In the remainder of Farther India and Indonesia: Indian culture; followed later, in Indonesia and Malaya, by Islam. In Farther India, the limits of prevalent Chinese and Indian influence are quite sharp. So far as Annamese is today the dominant language, we have Mahayana, ideographs, mandarins, chopsticks, etc. Laos, Cambodia, ancient Champa go with Siam and Burma in being overwhelmingly determined from India, primarily by overseas influences. This is one of the few Asiatic frontiers of the oil-and-water type.

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3 In the first paragraph of 5, "southeast China" is twice used where southwest is presumably meant.

All three of the languages of the politically dominant nationalities of Farther India have gained territory southward within the historic period, as Miss Bacon observes, and may have done so previously. An early, wide, and perhaps continuous distribution of Mon-Khmer dialects over the southern half or more of the Farther Indian peninsula is thus indicated. This would be analogous to the persisting continuity of Indonesian dialects in the archipelago.

The remnant populations different in culture and physical type appear to be the "Primitive Nomadic" peoples of Miss Bacon's "6." These were certainly of much less import toward later cultures than the far more numerous early Mon-Khmer and early Indonesians that were established in most of the area—almost certainly with agriculture—when the only slightly more civilized Burmese, Thai, and Tongkinese infiltrated or conquered southward on the mainland, and when the Hindus arrived both on the mainland and island coasts. I would construe the large and relatively uniform Mon-Khmer and Indonesian bodies, with their indubitably similar cultures, as the effective social substratum on which the immigrant populations with their more efficient political organization deployed to constitute what we call the "history" of the area.

6. *Primitive Nomadic.* It seems of doubtful value to reckon the Australoid Sakai, Negrito Semang, and similar fragments as having a type of culture taxonomically coördinate with, say, the Chinese. Least of all can this be done in terms of *areas* of culture: these scraps of tribes occupy only spots which are so small as to be difficult to enter on a map of the continent.

I should like to propose the view that the culture-historical significance of these primitives, as influences or ingredients, has always, in the past as in the present, been negligible. Their significance to us resides in an attitude to which they hold, namely to get along with all possible *minimum* of culture. This is a most interesting experiment for them to have performed for the benefit of those of us who are concerned with the processes and nature of culture. But it virtually eliminates them from having been of any real influence on the development of the culture of a continent or the world.

Cultural Blends. 1. *Korean.* I agree entirely with Miss Bacon that it is remarkable how little we know about Korea.[4] There can be no doubt that when the heavy Chinese influences are subtracted there is a solid native remainder.

4 Isabella Bird Bishop (*Korea and her Neighbors,* 1898) is perhaps the most trenchant observer, though the fullest assemblage of systematic information is by J. Longford, *The Story of Korea,* 1911.

This presumably shares many features with adjacent Tungusic culture.[5] But it would seem most profitable to determine first the "native," i. e., non-Chinese, constituents of Korean culture and subsequently to compare them with Tungusic for their degree of commonalty. There seems to be much that is distinctive of Korea: position of women, their "seclusion," curfew for men, men's topknot and adulthood only by marriage, near-outlawing of Buddhism, the general irreligiousness, the strange political "parties," the alphabet, the female *mutang* exorcists who both are possessed by spirits and evict spirits that cause illness in others, the blind male *pansu* shamans or diviners who are *taught* to control spirits, the special kinds and uses of Broussetonia paper, the shapes of the horsehair hats, the packing on bulls.

The Chinese constituent in Korea can be appraised in two ways. First, by an enumeration of Chinese items and patterns found in Korea. Any return flow would presumably be negligible. Second, by a comparison of the histories of the two countries. The total profiles of these histories run parallel at so many points as to indicate common currents of causation; which presumably amounts to consistent Chinese influence on events in Korea. Strong coincidence of pulse could hardly exist without an enormous amount of the plasma of culture being common. The parallelism is most evident in the segmentation of Korean history into natural or accepted periods; of which I therefore subjoin an outline.

Korean History: Segmentation

Ia. (legendary) 1122 BC, or Chou accession, Shang refugees establish a kingdom at Phyong An.

Ib. In 193 BC, about a generation after the conquest of the northeasterly Chinese kingdom of Yen by Ts'in, following the end of Chou, refugees from Yen seize Phyong An.

II. In 108 BC the great Han warrior emperor Wu-ti temporarily annexed what is now northern Korea. The reaction to this, beginning in about a half-century, was the formation of three native Korean states (there had been only tribes before), whose interrelations constitute the political history of the peninsula for the next seven centuries. This is the "Period of the Three Kingdoms," Silla, Korai, Pakche. Silla, the most remote from China, was organized first, in 57 BC; Pakche last, in 16 BC. About halfway through the period, writing, Buddhism, sculpture, etc., were introduced from China and soon transmitted to Japan (generally within one to two centuries more). Silla seems gradually to

5 Mongol, which Bacon also alleges, I would doubt as being specifically similar.

have become the most advanced culturally as well as the strongest of the three Korean states, and finally took the Japanese "colony" or outpost of Nimana in southern Korea. The three-kingdom period corresponds closely in time to the Chinese later Han, Three Kingdoms, and Six Dynasties periods; in both countries it was an era of political though fairly stable division.

III. In 589 China was reunited under the Sui dynasty, soon succeeded in 618 by the T'ang. At this time Silla had encroached on and was threatening its two neighbors. Soon after the T'angs were well established, around 650, there was an alliance between them and Silla, and another between Pakche and Korai, who soon called in Japan after Pakche had been conquered. In 663 the Japanese invaded Silla but were beaten by the Chinese; and by 668 Korai and Pakche had been "annexed" to China and Silla was a vassal. Actually, before long, the peninsula was ruled by Silla under nominal suzerainty to T'ang China. This condition continued until 935.

IV. In China, this date of 935 comes twenty-eight years after the final end of T'ang, and about halfway through the succeeding time of national political breakdown and rival states preceding Sung. In Korea, 935 stands for the overthrow of Silla by Wang Kien of Korai, who founded his own dynasty, independent of China, which was to last for all of 457 years, until 1392. The later rulers became vassals to the Mongols, but kept the dynasty going, which endured longer than any post-Chou dynasty in China. Wang Kien's line corresponds closely in time to Sung, Southern Sung, and Yuan, which covered 960-1368.

Va. In 1368 the Mings expelled the Mongols in a burst of Chinese nationalistic patriotism. Twenty-four years later, the Koreans founded a new dynasty, to rule Korea as Cho-sen from Seoul. On the one hand there was now strong Chinese imitation: literary examinations and Confucianism were introduced or reëstablished. On the other, Koreanism was emphasized. A state printing office was set up, with the famous great font of bronze types, rumors of which may have served to stimulate Gutenberg: the types were of Chinese characters, but were movable. A few decades later a true alphabet was devised which rendered the sounds of Korean efficiently. These were early developments; but in the sixteenth century manifestations of independence continued: Buddhism was heavily repressed; Fusan was taken and relations with Japan broken for sixty years; and, about 1575, the peculiar and unfortunate system of Korean political parties or factions took shape. This dynasty also had an extraordinarily long life, namely

of 518 years, until 1910. But this lapse was broken a bit before the middle by the Japanese invasion and conquest of 1592-1598.

Vb. By 1598, the Mings were running out; the Manchus were soon to replace them. Korea was "loyal" to the Mings, who had come to their rescue against Japan, though only with failure. As the Manchus rose in power, they had to conquer the Koreans twice, in 1627 and 1636. After the second time, Korea went into seclusion, becoming the famous "hermit nation." Even with China its relations were now cut to a minimum, on account of the hated Manchu rulers: the embassy to Peking was limited to a month, trade took place only under it. It is interesting that the seclusion was broken by the Japanese, who in 1876 forced a Perry-like treaty on the reluctant Koreans; also that the dynasty ended in 1910 by annexation, a year before the Manchus in China ended by revolution.

This analysis evidences the degree to which the national and cultural history of Korea is a reflex of that of China in its major profiles, in spite of quite conscious and considerable ethnic and cultural particularism. No such parallelism of events can be designated for Japan; nor, for that matter, does it hold for Tongking-Annam in spite of the contiguity of the latter to China.

Blend 2, *Japanese.* Miss Bacon is not wholly clear here between south China coast and Indonesia as the main source of the non-classic-Chinese constituent of Japanese culture. The south China coast is Sansom's suggestion, and the most reasonable one, with the Japanese-speaking Ryukyus serving as the presumptive link. In fact, it is difficult to see why Indonesia should ever have been dragged into the problem, except that more speculative views are sometimes the more interesting. Scattered items like tooth-blackening will prove nothing for a large, rich culture like Japan's. I should doubt whether wet rice would have to be posited as the nucleus of the southern ingredient; for, in that case, how about Korean rice-growing—is that also derived from Indonesia? After all, there is no need to assume porous loess and a dryish continental climate as the sole environment of "north" or standard Chinese civilization. Miss Bacon's "may have reached Japan indirectly by way of Indonesia" I do not understand.[6] On the other hand, I agree with her implication that the Ainu have not seriously affected Japanese civilization.

Blend 3, Indian. All cultures are composite in the origin of their content and multiplely so. What a term like "blend" really can mean definitely is that

6 Is this perhaps a slip for "ultimately from Indonesia but indirectly so" (viz., via South China or Formosa-Ryukyu)?

most of the content of a given culture has entered it so recently or massively from other cultures that it can be explicitly referred to these with assurance. In short, blended cultures are essentially derivative cultures. That is something which Indian civilization is not. It has given much more than it has borrowed (except perhaps for its last thousand years of conquest-subjection to Islam). The three outstanding centers in Asia of creativeness of great systems of values and ideas are the Near East, India, and China. Miss Bacon would, I am sure, agree with this. Why then the Near East and China should stand on their own feet as originating areas, but India be a blend and derivative, is hard to see. Is it the wheat and cattle versus rice and buffalo dichotomy of subsistence in India? Or Vedic Indo-Aryan culture uniting with a hypothetical and undefinable Dravidian one? The essential event in India was the forging of the characteristic idea system (plus the influence of this on other parts of the world), not the contact or mingling of one or another subsistence or ethnic element.

Blend 4, Tibetan. I am incompetent to carry farther here. But the meeting and intensification of Indian and Chinese influences as the cause of the seventh-century Tibetan spurt seems eminently plausible.

GENERAL CONSIDERATIONS

"Culture areas" are of course primarily not areas at all but kinds of culture which are areally limited. They are usually more simply and briefly labeled by their region than by their distinctive content or qualities. That they can be mapped implies that they are either static formations or represent moments in a time flow. The concept was first developed systematically for native North America north of the Rio Grande, and has proved most convenient and usable there. This is because the total area was large enough to contain conspicuous diversities, yet the cultures were rather close together in level; and they also were all virtually historyless. They could therefore be treated as coördinate. Around 1910-15, the archaeology of the areas was less systematically known than the ethnology. It did not extend back very far from the period of discovery. Hence it mostly revealed no very marked differences from the historic or recent culture of the same area. So the static classification worked pretty well. The same sort of classification applied south of the Tropic of Cancer did not work out nearly as consistently or usefully—there was too complicated a history, too varied an archaeological past.

This situation can be generalized. The more history is known, the more difficult is it to evolve an acceptable "culture area" classification. Simon-pure

historians have never used the concept. They have not refuted it; often they would admit the areas; but they take them for granted, and then operate with changes within or across them. Miss Bacon's difficulties are due to proceeding basically as if one could divide Asia into static areas, and yet being aware of the historic changes across the areas. The result is a varying degree of inconsistency of scheme.

I have tried not only to point out the inconsistencies, but to suggest an approach that may remove them. Where we possess reasonably adequate historic or archaeological knowledge, this should be given the primacy. The cultures should be viewed first as developments or growths; their areas, as secondary attributes. On this view, areas are often seen to expand, contract, or overlap—much as cultures change or blend. But in general the cultures will prove areally definable for any given moment. The ultimate outcome might be a series of culture-area mappings. But this would be a very different thing from a mapping or assignment that tried to reconcile areal differences, or ignored them, or was ambiguous in face of them.

It will be seen that mostly I have not attempted areal definitions. That means that my effort also is incomplete, and serves only as a take-off for future formulations.

Primary reliance on subsistence mechanisms has made almost as many difficulties for Miss Bacon as has primary formulation in terms of present conditions when there is a long past. I suggest it be admitted that political-religious-lettered culture can alter drastically and independently of subsistence culture. The fact complicates the total picture but must simply be accepted.

Another recognition that ultimately will have to be made is that pastoral societies normally are symbiotic complements of sedentary ones. Conceptually their cultures contrast with the sedentary ones, but functionally they are not independent. This becomes specially evident on an endeavor to map them in detail.

Finally, groups like the Semang and Vedda maintain their place in our consciousness for the same reason as Platypus and Amphioxus—they are types of evolutionary stage. Also like these biological forms, they are insignificant in an ecological consideration, whether static or historical; and ecological is what a culture area classification essentially is. These insignificant survivals should therefore be ignored, or relegated to footnote rank, rather than allowed to blur the salient outlines of historical and areal conclusions.

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SOCIAL ORGANIZATION OF TRUK

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THE COMPLEX ATOLL OF TRUK is located in the east central Caroline Islands between 7°7′ and 7°41′ north latitude and between 151°22′ and 152°4′ east longitude. It consists of a roughly circular atoll reef enclosing a lagoon nearly forty miles in average diameter. The reef supports a number of low coral islands of which only one has a permanent population. Within the lagoon rise sixteen inhabited volcanic islands ranging in size from a third of a square mile to about nine square miles. The total land area is about fifty square miles, and supports a native population of approximately 10,000. The people are Micronesians; they resemble Polynesians in physical type but are shorter and slighter and appear to have a somewhat larger Melanesian admixture. The Trukese have a relatively homogeneous culture, which is shared in considerable measure by 5,000 inhabitants of a dozen coral atolls and islands extending southeastward to Lukunor (50°29′ N, 153°58′ E) and westward to Puluwat (7°22′ N, 149°10′ E). The climate, fauna, flora, and basic mode of life are typical of the equatorial islands of the Pacific. Though discovered as early as 1565, Truk experienced no intimate contacts with Europeans until visited by whalers and explorers in the early nineteenth century. The first mission was established in 1879. Though Spanish sovereignty was recognized in 1886, actual administration did not begin until the arrival of the Germans in 1899. Truk passed into the possession of Japan in 1914 and of the United States in 1945. In the face of these acculturative influences the aboriginal culture has shown remarkable vitality, and most of what has disappeared in fact survives in memory.[1]

The people of Truk are divided into about forty matrilineal and strictly exogamous sibs (einang),[2] which also extend to the surrounding atolls from Lukunor to Puluwat. None is confined to a single island, and many are widespread, but no island has representatives of all. Besides the regulation of marriage, sibs possess only a single important function, namely, the channeling of

1 The field work on which this paper is based was done in 1947 as part of the Coördinated Investigation of Micronesian Anthropology sponsored by the Pacific Science Board of the National Research Council. Most of the intensive investigation, e. g., genealogical studies of kinship and land tenure, was done on the island of Romonum.

2 The spelling of native terms will follow the orthography proposed by S. H. Elbert, *Trukese-English and English-Trukese Dictionary* (United States Naval Military Government, Pearl Harbor, February, 1947). [Because the proper type is not available, we have substituted ó for o with a dot above in this orthographic scheme—Editor.]

hospitality. A native visiting another island or atoll for trade or any other peaceful purpose resorts to a member of his own sib, from whom he can expect shelter, food, and (formerly) sexual hospitality. True moieties are absent, although tradition divides the sibs into one group which is descended from the coconut palm and another which immigrated from a high island called Achaw, now commonly identified with Kusaie.

Functionally far more important than the sib is the matrilineal lineage (eterenges, or more commonly today faameni), characterized by actual common descent in the female line from a remembered ancestress. On a small island or in a district of a larger island the sibs locally represented are usually divided into two or more lineages, between whom there is no more political or other unity than between lineages of different sibs. A lineage averages thirty or forty members, and if large is often divided into sub-lineages (tetten). Status within the lineage depends largely upon seniority. The eldest capable male is the lineage chief (sómwonun faameni). He administers the land of the lineage and regulates the economic activities of its members. A female counterpart, the finesómwonun faameni, directs the work of the women. Within a generation the eldest male is called mwäänìichi and the eldest female finniichi; both enjoy considerable authority over their juniors.

Each lineage traditionally has its own territory (sóópw), common hearth (fanang), men's house (uut), and communal dwelling (imw). The territory consists of a number of named tracts of land, which are divided into plots owned and cultivated by individual members. The common hearth or earth oven is in charge of a senior male in the prime of life, called sómwonun fanang, who may be the lineage chief, a classificatory younger brother of his, or the mwäänìichi of the next generation. He manages the food supply and cooking for the lineage. Unmarried males above the age of puberty formerly slept in the men's house, and even today leave the parental roof but sleep in the houses of non-taboo relatives. Married men observing rules of sexual continence before war or ceremonial events also slept in the men's house and often do so even today. There is now often only one men's house in a village, used primarily as a communal meeting place.

Until late in the Japanese regime the house of the lineage—or of a sub-lineage if the lineage were large and subdivided—formed a hamlet at some distance from other dwellings, oftentimes located in the interior of the island. Today these hamlets have been abandoned, and the natives have moved into larger villages at convenient locations along the coast. Even within the present villages, however, the houses of a lineage, or at least of a sub-lineage, tend to be

clustered together. The dwellings themselves are smaller than formerly, and a modified Japanese house type is supplanting the older thatched houses.

The prevailing rule of residence has always been, and still is, matrilocal. Hamlets thus tended strongly to be inhabited by the women and unmarried children of a lineage, together with the husbands of the women. The men of the lineage resided in other hamlets with their wives. Rarely, however, did they live at any great distance, so that they were able to spend considerable time with their own matrilineal kinsmen. They worked on their own lands as well as on those of their wives, contributed food to the common hearths of both lineages, and were always welcome to eat with their sisters or to spend a night in the men's house of their own lineage.

Essentially the hamlet or sub-hamlet was a large matrilocal extended family. The nuclear family of father, mother, and children, though socially recognized, was overshadowed by the extended family group, and even today is only rarely the residential unit. Although lineage and sub-lineage dwellings have disappeared, the matrilocal extended family is still apparent in clusters of adjacent houses inhabited by a group of matrilineally related women with their husbands and children. Today as formerly, most economic activities are carried on in common within the extended family, which collectively takes care of all dependents.

Marriage is both lax and brittle. Adultery, though theoretically prohibited and punishable, is exceedingly common, and divorce and remarriage are so frequent as to constitute the rule rather than the exception. Monogamy prevails overwhelmingly; complete genealogies for the island of Romonum, going back six or more generations, revealed only a single case of polyandry and only three instances of polygyny. Levirate and sororate unions, though permissible, are neither preferred nor common. Incest taboos and exogamy extend not only to the entire matrilineal sib but also to all members of the father's lineage, with the result that cross-cousin marriage does not occur.

From a purely descriptive or synchronic point of view Trukese social organization appears to be a typical matrilineal and matrilocal system, with minor exceptions which might readily be attributed to acculturation. When, however, its internal dynamics is examined by genealogical methods, noteworthy patrilineal and patrilocal features emerge, and the seeming acculturative exceptions are found to conform to ancient patterns. The patrilineal alternative in the inheritance of real property will be described below under land tenure. Patrilocal residence occurs regularly, in former times as well as today, whenever the number of women closely akin matrilineally is too few to maintain an efficient

extended family organization. Thus when a lineage approaches extinction, with only one or two surviving women, they go to reside with their husbands in the hamlets or households of the latter. Patrilocal residence is also a common alternative in inter-island marriages; the woman in such cases has no lineage mates in her husband's district and consequently usually goes to live with his matrilineal relatives, or at least in a house built on his land. Since houses are built by men for their wives rather than for their sisters, a man with considerable land may build a house for his wife and her sister on his own property. This may result in a shift in the location of the entire hamlet of his wife's lineage, or in a split in the lineage. In the latter case it is likely that in time a new fanang (hearth) will be organized and a new uut (men's house) built, and that in this way a new lineage will emerge.

Even more interesting, perhaps, is the possibility of shifting from one matrilineal lineage to another by way of a patrilineal connection. Several instances are attested in the genealogies. After a patrilocal marriage, either of an immigrant woman or in the case of a decadent lineage, if the woman has several daughters they will establish a matrilocal extended family in the next generation, and a new lineage will be founded or a decadent one reestablished. If, however, there are only one or two daughters for a couple of generations, they will either continue to marry patrilocally or, if they marry matrilocally, they and their children will become assimilated to the lineage with which they reside, i. e., that of the father or grandfather who married patrilocally. In this latter case they observe an additional rule of exogamy, avoiding marriage not only with members of their own sib and of their father's lineage but also with members of the lineage with which they reside and ultimately with any member of the sib to which this lineage belongs. After a few generations the matrilineal descendants will forget their original sib membership and be considered full members of the sib to which their adopted lineage belongs.

Political structure in Micronesia is in general characterized by a striking degree of complexity. Truk and the surrounding coral atolls constitute the outstanding exception. Above the localized lineage with its chief there was aboriginally only a single level of political integration, the district. The district consisted, and still consists, of an area over which one lineage has gained ascendancy. A small island usually forms a single district, whereas a large one will be divided into three or four. The dominant lineage may in some instances be the one which first colonized the island, but in most cases it has attained its position through war. The other lineages are usually graded in rank order, their relative position being closely correlated with the extent of their land holdings.

The chief of the dominant lineage is recognized as district chief (sómwonun fönü). The basis of his power is his ultimate right, a sort of eminent domain, over all the cultivable land of the district, the other lineages holding their lands theoretically at his pleasure. He collects tribute from the other lineages in the form of periodic gifts and first fruits. He officially opens and closes the all-important breadfruit season, sets the dates for ceremonies in the annual cycle, and exercises over-all direction of the economic activities of his subjects. He is also the traditional war leader. Although the German and subsequent administrations have accorded him judicial powers, he did not originally possess them. Disputes and crimes were discussed and disposed of at an assembly of the adult men of the district in the men's house of the chief's lineage.

It was considered appropriate for a district chief to have a knowledge of oratory, warfare, cosmology, mythology, the history of the district with special reference to land rights, and a variety of magical skills. A man with such qualifications was known as an itang, and if the district chief was not himself an itang he was usually assisted by one. An itang was greatly respected, and was feared for his magical powers, but he was not a priest nor was he primarily concerned with divination, sorcery, or therapy.

The Germans created, and the Japanese continued, a third level of political integration, the area (finäik or "flag"), under which were consolidated the districts of a large island or of a group of adjacent smaller islands. Under the recent American administration several additional levels of chiefs have been added, forming an unwieldy political hierarchy. Since the area and higher chiefs have been vested with judicial and administrative powers for which the local culture has as yet developed no adequate system of controls, the new complexity in political structure has created potentialities for corruption and despotism which constitute the principal threat to the success of the present administration.

The system of property and inheritance exerts a significant if not a determining influence on Trukese social organization. Movables are individually owned. Property rights in them are based primarily upon manufacture or appropriation. A person may dispose, by gift or by sale, of any artifact which he has made himself. If, however, he makes an object to give to some one else, whether at his own initiative or upon request, he must first secure the permission of his own children, who may appropriate it if he does not do so. Permission is not required to sell the object, but if he does so he must give his children a portion of the proceeds of the sale. The recipient of a gift may not alienate the article by gift during the lifetime of the maker without first securing the permission of the latter, who may reclaim it if he has not been consulted. He may, however, sell

the article without permission, but if he does so he must give the maker a share of the proceeds. Sale by the maker or by a recipient from him with his permission constitutes a definitive alienation of the property title.

The owner of a pig which produces a litter may keep the shoats himself, sell them, or give them to a child or a lineage mate to raise. In the last case, the recipient must give him a share of the pork when the animal is slaughtered or the owner may claim the price of the pig in goods. The recipient, however, has full title to the offspring of the pig given to him. A pig may not be given to a member of another lineage without the permission of the donor's children. Property in chickens parallels that in pigs except that the right of the donor is to a share in the eggs, not in the meat.

Property rights in artifacts, domesticated animals, and other movables are transmitted by inheritance from parent to child. Both sexes participate in inheritance unless the property is appropriate to one sex alone, in which case sons inherit from the father and daughters from their mother. The rule of inheritance is not strictly patrilineal, however, for if a man has no children his sisters' children take precedence over brothers' children and other patrilineal heirs.

The transmission of incorporeal property rights is almost equally matrilineal and patrilineal. The most important of these rights, technological skills and the magical rites (rong) associated with them, are taught by women to their children and by men to both their own and their sisters' children. Transmission to a spouse, insofar as is appropriate, is also permissible. A man may not teach specialized skills and rong to any one else without first securing the permission of both his own and his sisters' chiildren. If his brother has died, he may impart some but not all of his knowledge to that brother's children. The lore of the itang constitutes a partial exception to the general rule respecting incorporeal property. An itang may teach his son a part of what he knows but never all; only his sisters' children may receive his entire stock of knowledge.

The inheritance of real property is exclusively matrilineal in principle, although even under aboriginal conditions men not infrequently gave plots of land to their sons during their own lifetime and the legitimacy of such patrilineal transmission was fully recognized. The German administration attempted by law to substitute patrilineal inheritance of land for matrilineal inheritance, and the Japanese administration followed the same policy. The natives resented this violation of their aboriginal custom and found a means of evading the law, namely, by transmitting the bulk of their real property by gift to their matrilineal heirs before death. Despite such evasions, nearly fifty years of administrative pressure introduced certain changes. Patrilineal inheritance did take place in

many cases, and it acquired a certain legitimacy in the minds of the natives. With the advent of the American administration native custom with respect to land was again recognized, and the insistence on patrilineal inheritance rescinded. Today, matrilineal inheritance is alone recognized for any land of which a man is possessed at the time of his death. It has become customary, however, for most land rights to be transmitted by gift before the owner reaches old age, the latter retaining rights of use until his death. Owners may dispose of land in this way as they wish, either to matrilineal or to patrilineal heirs or to both. It is considered proper, however, for an owner to divide his land approximately equally between matrilineal and patrilineal heirs, giving some preference to that group which is relatively poorer in land.

The cultivable land of Truk is divided into named tracts (eif), each of which is associated with a particular lineage. Tracts vary greatly in size, averaging slightly larger than an acre. The territory (sóópw) of a lineage includes a number of tracts, often though not necessarily adjacent to each other. Tracts are for the most part divided into plots (äpär), about three to a tract on the average, each of which is associated with an individual land owner. Offshore waters suitable for fishing, especially fringing reefs, are also divided into named tracts which are similarly owned.

The native system of land tenure is relatively complex. A distinction is made between rights to the land itself (pwün, soil) and usufruct rights to the land and what grows upon it, which are defined as rights to trees (irä). Titles differ in seniority as well as in type, and any plot is subject to a graded series of rights somewhat reminiscent of subinfeudation in European feudal land law. The system may best be illuminated by describing the various types of tenure in the order of their seniority.

1. *Eminent domain of the district chief.* Under aboriginal conditions the district chief had a paramount claim to all the lands held by the lineages subject to him. This was acquired by conquest and could be extinguished only by conquest. It was manifested in the right to receive tribute in the form of first fruits and periodic gifts of produce from the lands of the subject lineages. If any lineage failed in its tribute obligation, the district chief had the power to confiscate the land and award it to another lineage. This type of tenure has lapsed today, or rather it has been transferred to the colonial administration, whose right to levy taxes and to appropriate property for administrative use is justified thereby.

2. *Lineage fee simple.* The members of a lineage collectively enjoy a basic claim to all the lands which constitute its traditional territory (sóópw). This title, which is administered by the chief of the lineage, may be acquired by settlement, by conquest, by purchase or gift from another lineage, or by patrilineal inheritance from a lineage

which has become extinct, and may be extinguished by conquest, sale, gift, extinction of the lineage, or abdicating or forgetting of its claim. Lands secured by a lineage are distributed in tracts and plots to members of the lineage, who thereby acquire intra-lineage usufruct titles (see below). As long as these lands are held by members of the lineage, the lineage chief has the right to receive tribute from them in the form of first fruits and periodic gifts, and he may reallot abandoned or unused plots. With his permission, however, a usufruct title may be transferred to a member of another lineage, but even after this has occurred any member of the lineage may plant upon any unused portion of the land and enjoy for life the produce from what he has planted.

3. *Intra-lineage usufruct tenure.* Any member of the lineage which holds the fee simple may secure title to a tract or plot by allocation from the lineage chief or by gift or matrilineal inheritance from another member of the lineage. In contradistinction to the two previous types of land tenure, however, this right is one of usufruct only and does not include any title to the land itself. A usufruct owner may transmit his property to another member of the lineage by gift or bequest, but he may not transfer it to a member of another lineage, e. g., a son, without the permission of his own lineage chief, and if he does so he can alienate only a portion of his rights, the remainder being residual and transmissible only in the female line. The alienable rights include the right to plant trees or crops on the land, title to the trees which he has planted himself, and the right to the product of all the trees on the land whether planted by himself or his predecessors. What he cannot transmit is the title to the trees planted by his predecessors. For the right to use the produce from these trees the new owner and his heirs must continue to pay first fruits and periodic gifts to the alienator and his matrilineal heirs as long as any of the trees survive, after which this residual right is extinguished. The lineage chief's permission is required because by such a transaction he resigns his claim to first fruits in favor of the alienator.

4. *Extra-lineage usufruct tenure.* Tenure of this type may be acquired by purchase, gift, or patrilineal inheritance from another usufruct owner, whether the latter is or is not a member of the lineage which holds the fee simple. As in the case of an intra-lineage usufruct title the rights involved are partly alienable and partly residual and hereditary in the female line. The alienable rights are those of planting on the land and of using the product of all trees and crops growing upon it as well as the title to the trees which the alienator has planted himself. Title to all trees planted by previous usufruct owners is retained by the matrilineal heirs of the persons who have inherited or received the trees from them, and hence cannot be alienated. An extra-lineage usufruct owner owes the usual periodic gifts to the matrilineal heirs of all previous usufruct owners who have title to any trees still growing on the land. If this obligation is not fulfilled, the claimants of residual rights have the power of regaining the usufruct to the trees which they own as well as the other alienable rights of the usufruct owner, who retains only the title to and use of the trees which he himself or his immediate predecessor has planted. As an additional inalienable right each successive extra-lineage usufruct owner acquires for his lineage a potential fee simple claim to the land itself. Of several such claims the prior one becomes con-

verted into a full lineage fee simple title upon the extinction of the lineage previously possessing this title or when time has extinguished the memory of the previous fee simple title. Prior to the advent of the Germans usufruct titles of the extra-lineage type, though known, were relatively few in comparison to those of the intra-lineage type. As a result of German and Japanese administrative pressure in favor of patrilineal inheritance, however, the relative proportions of the two types have been reversed, and today most of the plots to which a lineage holds fee simple are the private usufruct property of members of other lineages. The actual system of land tenure, nevertheless, has not changed.

5. *Life usufruct tenure.* The final type of land title results from the fact that any member of the lineage holding the fee simple and any member of the lineage of the full usufruct title holder can, with the latter's permission, plant trees or other crops on the land and can enjoy their product as long as he lives. At his death, however, his rights revert to the full usufruct owner. Members of the lineage with the fee simple, if refused permission by the usufruct owner, can claim all the alienable rights to the land. If they do, the case comes to trial and, depending upon the determination of facts, they may be awarded or refused their claim or allowed it for a portion of the plot involved.

To secure a clear fee simple title to any plot of land in Truk today is a complicated matter. The purchaser must buy up the claims of any life tenants, pay the usufruct owner for his alienable rights, pay the latter's matrilineal heirs for their claim to residual rights, compensate the matrilineal heirs of all prior usufruct owners for their residual rights, and finally pay the chief of the lineage with the fee simple a sum larger than the total of all other payments to obtain title to the land itself. This has contributed to the fact that very little of the land of Truk has thus far been alienated in fee simple to foreign planters or business men, missions, or wealthy native and half-caste individuals.

An outstanding feature of Trukese social organization is the special relationship which prevails between the members of a matrilineal lineage and the children of the men of that lineage, who are collectively called the öfökür of the former. This is correlated with the patrilineal features of the property system—the patrilineal inheritance of movables and to a lesser extent of incorporeal and real property, the control which a man's children exercise over his disposition of personal property, and especially the obligations of a patrilineal inheritor of land toward the matrilineal heirs of the donor, who is usually his father, with respect to their residual rights. The relationship ranks next in importance to that between members of the same lineage, and is similarly characterized by exogamy. It is noteworthy that fee simple rights to land pass, when a lineage becomes extinct, to the öfökür of that lineage and not to another lineage of the same sib, even if it is possible to trace actual genealogical connections with the latter. The relationship

is also reflected in the kinship terminology; all members of the father's lineage are terminologically classed with the father and his sister, irrespective of generation, and all ōfōkür, including the children of a mother's brother or mother's mother's brother, are called "child." The result is a kinship system of the Crow type, despite the characteristic Malayo-Polynesian paucity of distinct denotative terms.

A list of the Trukese kinship terms is given below, with the extensions of each. All terms are given in the first person singular possessive form.

1. semei—father, father's brother, husband of a maternal or paternal aunt, grandfather, spouse's father, male lineage mate of an ascending generation (alternative to 3 for a male speaker), any other male relative of an ascending generation except sons of male lineage mates, father's sister's son, father's sister's daughter's husband, father's sister's daughter's son, any male of the father's lineage, husband of any female of the father's lineage.

2. inei—mother, mother's sister, father's sister, wife of a maternal or paternal uncle, grandmother, spouse's mother, any female relative of an ascending generation except daughters of male lineage mates, father's sister's daughter, father's sister's son's wife, any female of the father's lineage, wife of any male of the father's lineage.

3. ääi mwään—elder sibling of the same sex as Ego (alternative to 4), any older person of Ego's sex, generation, and lineage (alternative to 4), mother's brother (male speaking only, alternative to 1), any male lineage mate of an ascending generation (male speaking only, alternative to 1).

4. pwii—sibling of Ego's sex (alternative to 3 for an elder sibling), mother's sister's child of Ego's sex (alternative to 3 for an elder cousin), father's brother's child of Ego's sex, any sibmate of Ego's sex and generation (alternative to 3 within Ego's lineage for a person older than Ego), father's sister's son's child of Ego's sex, child of any man of the father's lineage if of Ego's sex, wife's sister's husband, husband's brother's wife, any person who has married a person of the sex, generation, and lineage of Ego's spouse, a special friend of the same sex with whom one has formally agreed reciprocally to adopt the term and accept the associated privileges and responsibilities.

5. feefinei—sister (male speaking), any female of Ego's sib and generation (male speaking), father's brother's daughter (male speaking), daughter of any man of the father's lineage irrespective of generation (male speaking).

6. mwääni—brother (female speaking), any male of Ego's sib and generation (female speaking), father's brother's son (female speaking), son of any man of the father's lineage (female speaking).

7. nei—son, daughter, brother's or sister's child, grandchild, spouse of a son or daughter, any relative of a descending generation unless the connection is traced through a member of the father's lineage, child of any man of Ego's lineage irrespective of generation.

8. pwünüwei—husband, wife, sibling-in-law of opposite sex, spouse of any one whom Ego calls pwii (see 4 above), any one whom Ego's spouse calls pwii.

9. öösei—sibling-in-law of Ego's sex, spouse of any one whom Ego calls feefinei or mwääni (see 5 and 6 above), any one whom Ego's spouse calls feefinei or mwääni.

Whenever ambiguity arises in the use of any of the above denotative terms, all of which are highly classificatory, the Trukese resort freely to compound descriptive terms. Thus among a person's various nei (7) a grandchild may be referred to as nöwün nei (my child's child), the child of a man of one's own lineage may be called nei öfökür, and sex and age distinctions may be made as needed, e. g., nei äät (my immature son), nei mwään (my adult son), nei nengngin (my immature daughter), nei feefin (my adult daughter). The terms listed are used primarily in reference. In address, personal names are strongly preferred, although paapa (father) and maama (mother), presumably derived from English, are occasionally heard.

Patterns of behavior between kinsmen correspond rather closely to terminological categories. Sexual intercourse and marriage are prohibited as incestuous, not only with a person of one's own sib or of one's father's lineage, but also with any consanguineal relative to whom one of the above kinship terms is applied. If the relationship is purely affinal, however, as in the case of wife's mother or son's wife, sex relations are mildly tolerated as with non-relatives. Between persons who call one another pwünüwei (8), indeed, sexual intercourse is fully privileged, as between husband and wife.

The responsibility and authority of parents for the education and socialization of their children is shared by other relatives whom the children call "father" (1) and "mother" (2), especially by those within the extended family. A father's authority over his children and others whom he calls nei (7) ceases, however, when they reach puberty; thereafter it is improper for him to speak sharply to them. A man's elder brother, maternal uncle, and others whom he calls ääi mwään (3) exercise authority over him and can reprimand him not only during his childhood but after he becomes adult, and while he is a child one of them acts as custodian of any property which he may have inherited. In general, a person may freely borrow a tool or other artifact from any primary or secondary relative, merely notifying the latter subsequently that he has done so; in the case of an ääi mwään, however, permission to do so must be secured beforehand.

A married man exercises authority over his wife. He contributes labor and food to her extended family and to his own lineage, and divides his time between the two. When widowed or divorced, a man formerly returned to his own lineage

and lived in its men's house but took his meals largely with his classificatory "fathers" (1). Today it is more common for him to go to live with a classificatory "father" (1), e. g., a father's sister's son.

The relationship between brother (6) and sister (5), own and classificatory, is marked by a considerable degree of avoidance. After both have reached puberty they cannot sleep in the same house or use unchaste language in each other's presence, and a brother will not allow others to use obscenity when both he and his sister are present. It is considered tantamount to incest if a man sees the breasts of any woman whom he calls "sister" (5); hence women, who commonly go unclad above the waist in the vicinity of the home, rush to cover their breasts if an own or classificatory brother approaches, and always wear an upper garment when they go out in public. It is likewise considered indecent for a man to view the breasts of the adult daughter of a brother or sister.

A man may joke freely, engage in horseplay, and exchange ribald remarks in public with any woman other than his own wife whom he calls pwünüwei (8). He may also joke and use obscenity with men whom he calls "father" (1), "brother" (4), and "son" (7). He is much less free with his ääi mwään (3), and as an exception to the class of "fathers" he must observe great restraint with his wife's father. Refraining from obscenity as a token of respect is also required in the presence of a person called öösei (9), and ribaldry is prohibited between a man and any woman whom he calls "mother" (2), "sister" (5), or "daughter" (7).

Respectful behavior reaches its apogee in the phenomenon of "crawling," which has become obsolete on Truk in the memory of living informants but still occurs in some of the atolls to the west, e. g., Puluwat. In the presence of a district chief or an itang ordinary people were permitted to stand up or walk erect only if the chief or itang were standing; if he were sitting, squatting, or kneeling they could move in his presence only by crawling on all fours. Identical behavior was observed in two kin relationships, namely, by a woman toward any man whom she called mwääni (6) and by a man toward any woman whom he called nei (7). It was initiated only after both persons had reached puberty, i. e., after the woman had emerged from her first menstrual isolation and after the man had assumed the loin cloth of an adult male. If a woman approached within approximately fifty feet of an own or classificatory brother, or a man of an own or classificatory adult daughter, the former would call out "Wüütäämo!" ("Please stand up"). The latter would then either rise and allow the former to approach erect, or answer curtly "Ópwórooto!" ("Crawl hither"), in which case the former could proceed only by assuming the crawling position.

The relatives who are expected to participate in the ceremonies which attend the major crises in the life of an individual are the members of his own and his father's lineages, their spouses, and the öfökür (children of the men) of both lineages. Among these, the ones who play the most prominent roles are the women of the father's lineage, who are classificatory "mothers" (2), and own and classificatory "children" (7) of both sexes. All relatives in these two categories, for example, are expected to bring gifts when a child is born, when a girl first menstruates, when a man or a woman is married, and when a person dies.

Corrigenda by the junior author based on two months of additional field work: Research on other islands than Romonum revealed the existence of sub-sibs (called by the same terms as lineages) comprising lineages of several districts which share a tradition of common ancestry. Sexual hospitality is associated with the sub-sib, not the sib. Except on Romonum, and for the dominant sib of a district, there is usually only a single lineage of a sib in any district. Commonly, too, only one or two lineages of a district have a men's house, and only a few of them a hearth, members of other lineages frequenting those of their fathers' lineage. Both levirate and sororate proved to be preferential in theory, though accounting for only a moderate proportion of remarriages. Revision of Romonum genealogies revealed three additional cases of polygyny, resulting from levirate usage. The eminent domain of the district chief derives from the theory that all other lineages hold their lands through patrilineal inheritance from his, the founding lineage. His first fruits and confiscatory rights are interpreted as those of a father who has given land to a child. The term ääi mwään (3) refers primarily to an elder sibling of the same sex, and is applied to maternal uncles only in connection with inheritance or other matters when it is important to distinguish between "fathers" (1) of one's own and one's father's lineage. Like a father, but unlike an elder sibling of the same sex, a maternal uncle ceases to exercise authority over a sister's son who has passed puberty, except in regard to marriage and matters of lineage concern.

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BRIEF REPORT ON ARCHAEOLOGICAL INVESTIGATIONS IN BAJA CALIFORNIA[1]

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THE ARCHAEOLOGY of the peninsula of Lower California is little known, except for the famous "Pericú" crania collected by Dr Ten Kate and by Leon Diguet.[2] The physical type represented is now generally recognized as belonging to the Lagoa Santa group recovered sporadically from Texas to South America.[3] The place of these Lower California specimens in prehistory has been subject to a long controversy which has remained unsettled partly because the archaeology has remained unknown. Furthermore no new material has been added to this problem since the 19th century.[4]

Notes and papers on the archaeology of Baja California are obscurely published in the main. Malcolm Rogers has given his impressions on the prehistory of the peninsula, and has attempted to place Lower California prehistory with regard to the Californian and Southwestern fields.[5] Recent work has, on the whole, been confined to the International Border area which is linked with the

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1 During Spring, 1947 the first University of California expedition of Associates in Tropical Biogeography engaged in field work on the peninsula of Lower California. The party consisted of Drs Carl Sauer, R. A. Stirton, Howel Williams, Lincoln Constance, Messrs Ira La Rivers, Edwin Hammond, and the author, who continued an archaeological survey with excavation on several sites.

The author wishes to extend the thanks of the expedition for help in Baja California to the Governor of the Territorio Sur, General A. Olachea, and Prof C. Piñeda and the Club de Exploradores, "Huaxoros" of La Paz, Lic M. Torre, Prof A. Ceseña of Buena Vista, Sres F. Chacón, J. Carrillo, C. Hidalgo, J. Garma, M. Cota, F. de la Toba, J. Escudero, F. Jibertt, and to Mr H. Maltby.

The archaeological work was carried out with permission of the Government of the Republic of Mexico through the Department of Public Education and the Sub-secretary of that department, Dr Leopoldo Chávez. The permit was administered by Sr Eduardo Noguera, Director of Prehispanic Monuments of the Instituto Nacional de Antropologia e Historia. Thanks are due for this kind coöperation.

2 See particularly Ten Kate, *Materiaux*, and Diguet, *Anciennes Sépultures*. No connection has been established between the historic Pericú Indians of the Cape Region and the skeletal remains. Not only are there several archaeological cultures in the Cape Region and no known historical sites, but the so-called "Pericú" also occur in Cora and Huchití territory. Diguet himself believed that the well-known secondary burials antedated the Pericú. A geographic or site name is certainly preferable; my suggestion is the *Cerro Cuevoso Type* for the dolichocephalic remains usually found as secondary bundle burials.

3 Woodbury and Woodbury, *Prehistoric Skeletal Remains*.

4 Rivet, *Recherches Anthropologiques;* Hrdlička, *Melanesians and Australians*.

5 Rogers, *Early Lithic Industries* and *Outline of Yuman Prehistory*.

California deserts aboriginally.[6] On the other hand Baja California has its own long span of prehistory under the peculiar geographical conditions imposed by its peninsularity.

ABORIGINAL GROUPS

It has been necessary to reconstruct the distribution of the aboriginal tribes and languages from the historical records because the native populations faded early, except in the far north of the peninsula where the Yuman languages and habits of the Diegueño, Akwa'ala, and the Kiliwa are known from modern studies with informants.[7]

To the south of these groups the various Cochimí tribes and languages extended to the vicinity of Loreto, the old capital of Baja California. While the Cochimí were also Yuman in speech, the Guaicurá, Pericú, and Huchití, with their various subdivisions were non-Yuman.[8] These latter groups are little known because of the lack of good linguistic material, but they have been placed tentatively by Sapir in the Hokan-Siouan stock.[9]

The position of these non-Yuman speaking peoples in the region of extreme isolation at the southern end of the peninsula has been added to the hyperdolichocephalic physical character of the "Pericú" (Cerro Cuevoso people) in constructing a remnant population of early migrants into the New World.

ETHNOGRAPHICAL NOTES

There were striking differences among the various groups in material culture as well as in religion and society. In historic times agriculture was restricted to the Yuman tribes along the Colorado River; native economy in the rest of Baja California was one of hunting, fishing, and gathering, usually in small wandering bands.

During the 18th century pottery-making extended to the 30th parallel; south of this line coiled basketry was made by the Cochimí. On the other hand the Pericú were apparently limited to a single type of "sewn basket"[10] for cleaning and toasting seeds. While the bow and arrow were used throughout, the Pericú

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6 See the Bibliography for Roger's various publications; Treganza, *Archaeological Reconnaissance;* Engerrand, *Estado Actual.*

7 Kroeber, *Classification;* Spier, *Southern Diegueño;* Gifford and Lowie, *Notes on Akwa'ala;* Meigs, *Kiliwa Indians;* Drucker, *Culture Element Distributions.*

8 Mason, *Native Languages;* Massey, *Tribal and Linguistic Divisions.*

9 Sapir, *Central and North American Indian Languages.* See also Mason, *Native Languages,* pp. 63, 79.

10 These Pericú baskets were made of palm bark, in sections 3 to 4 inches wide, fastened together with twigs. They were oval in shape and about 18 inches in length (Clavigero, *History,* p. 98).

possessed the spear-thrower as well. The Pericú speared fish, and the northern tribes used nets and hook-and-line.[11] Log-rafts were used by the Pericú and tule balsas were in use on the Guaicurá and Cochimí coasts. All three used the double-bladed paddle.[12] These few examples will suggest the differentiation among tribal groups.

The points of variance are most noticeable between the Pericú and the Cochimí; the Guaicurá share features with both peoples. Kirchhoff has already called attention to the cultural stratification which exists on the peninsula.[13]

The following preliminary report is based on an archaeological survey by the writer and his wife of the northwestern coastal region in 1941,[14] on a short reconnaissance made with Dr Carl Sauer in 1946,[15] and on our 1947 expedition. The notes are presented by generalized geographic areas which are not to be construed as archaeological regions or culture areas.

CAPE REGION

This area includes both the mountainous end of the peninsula south of the broad lowland gap west of La Paz Bay, and the shores of that bay. Paralleling the coast line in the Cape Region are ranges of mountains. Summer rains provide continuous water in the mountains which feed intermittent streams below. In the central lowland there are several broad alluvial valleys such as the Santiago and the San José. Everywhere the flora reflects the moisture in greater verdure. Aboriginally plant and animal food was abundant, and there was a variety of both.

In historic times the Cape Region was held by the Pericú, by the Huchití and related Cora, and in part by the Guaicurá. The aboriginal population was swept away by a series of epidemics in the 18th century. This holds true for the Guaicurá and Cochimí to the north.[16]

Along La Paz Bay there are numerous shell middens frequently of great extent: several were noted which attained a mile in length. These sites around the shores of the bay are usually about three feet in depth. The record is either

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11 Massey, *Historical Ethnography, Historical Occurrence of the Dart-thrower.*

12 Heizer and Massey, *Aboriginal Navigation.*

13 Kirchhoff, *Tribus de la Baja California.* This is an excellent consideration of the ethnographic value and importance of Lower California.

14 Grateful thanks are due to Mr James K. Moffitt and to Mr Sidney Ehrman for financial support of the initial field work.

15 This work was supported by the Departments of Geography and Anthropology of the University of California.

16 Cook (*Extent and Significance of Disease*) has written a complete analysis of the effects of disease on the natives.

FIG. 1. Sketch map of the southern part of Baja California.

one of long occupation or of a more dense population than has heretofore been reckoned.

Projectile points in the La Paz area were usually large; common, and unique to the area, are a long slender tang-stemmed type, and a large broad type with a stubby convex stem. Some of these larger points may be knives, which were hafted. Smaller points frequently have serrated edges.

Where the Sierra de Las Cacachilas meets the eastern edge of La Paz Bay there are many caves: those examined in the survey contained deep shell deposit.

It was usual to find bifaced cobble handstones on all of these sites. Scrapers, particularly plano-convex end types, were fairly frequent. On one site (BC 70) massive core tools (hand axes and scrapers), bifacially percussion flaked, were encountered in abundance.

The coastal stretch south of Punta Pescadero to Los Frailes was brought under intensive search. All our excavating was done there. Although open sites are frequent here, there is a noticeable increase in their number along the bays at Cabo Pulmo and Los Frailes. These sites are from one hundred yards to a quarter of a mile in length. A steep sea-cliff edges the beach on these sheltered bays, and it is on these cliffs that occupation refuse and human bones are being eroded over the cliffs and out from under covering dunes, which, in part, are ancient.

The surface of the sites at Pulmo and Frailes is littered with a variety of shell types, and with artifacts which include shallow basin milling stones, cobble handstones, and crude flake tools. Projectile points seem to be absent.

From our excavations in BC 69 on Frailes Bay, we gathered data on the subsurface conditions in such sites. Two methods of burial were found: near the surface was a single extended skeleton; and, in what was formerly a deeper section,[17] side-flexed burials were found. For the most part bones were in poor condition and badly fractured. There is a possibility of a third method of disposing of the dead shown by several burned and carbonized human bones which were found on the surface of the site.

Artifacts were rare with these burials. With an infant burial (No 3) were two polished oyster shell ornaments perforated and decorated with incised and punctate designs. Also accompanying this burial were layered groups of ochre-stained human incisor teeth so arranged that they must have been attached to some fabric or netting.

The skeletons and few artifacts, collected before us during the 19th century, had been taken from caves; therefore, it was important for us to locate more caves with human remains to provide material by which the inadequately reported earlier finds could be evaluated. Fortunately we were successful in our search; unfortunately many of the caves and rock shelters which are readily accessible have been vandalized.

In the Cerro Cuevoso near Cabo Pulmo we excavated site BC 75, a small cave that had remained untouched and was unknown to the local ranchers. Small as the cave was—9 by 7 feet and with a maximum depth of 34 inches—six

17 The profile of the cliff and site clearly shows that prior to the formation of the present sea-cliff, the flexed burials now found on the cliff edge were covered with deeper deposit.

burials were obtained. Five of these were of the type first reported by Ten Kate for the Cape Region, that is, the secondary or bundle burials. Only three of these five secondary burials, however, were brilliantly painted with red ochre. The other two secondary burials were unpainted and their situation was otherwise less elaborate than that of the painted. As expected, all these burials were in grass lined nests, and were covered with bark matting secured around the bones with braided cording. Artifacts found with the painted secondary burials include incised beads cut from sections of cane, *Olivella* shell beads with the spires ground off, fragments of featherwork around the crania, and a type of flat double-ended wooden artifact with a shark-tooth inserted in one end and held in place with an adhesive. The unpainted bones were not accompanied by artifacts.

Below these secondary burials, in the deepest part of the cave, was found a tightly flexed articulated burial—a type unreported in the earlier archaeological explorations. This burial (No 5) was closely covered with a sewn fiber mat; the skeleton lay upon a similar mat. Over the matting, covering the pelvis of Burial No 5, was a sewn palm fiber "basket," 23 inches long, shaped like a winnowing basket, that is, oval, shallow, with a single constricted end. Accompanying the skeleton were four dart-throwers tied in a bundle, two polished oyster shell ornaments, and two of the flat double-ended artifacts with inset shark-teeth.

Stone artifacts were practically absent from the cave, so that comparison with the culture of the coastal sites rests primarily, at present, on the similarity of ornaments and the use of red ochre. However, near the entrance to the cave, on the same level as Burial No 5, were several crude core choppers closely resembling those of the open sites. No other stone artifacts were found.

Several other cave sites were visited in the survey, and more skeletal remains were rescued from the vandalized sites. Little information was obtained in these cases but, inasmuch as these bones are important, they were collected. At site BC 81, near Arroyo Salto de Los Llanitos (in the vicinity of Valle Perdido), we found remains of a single individual, ochre stained, in a shelter formed by two granite boulders. In a collection made at sites BC 84 and 85, at Agua Amarga, bones from seven individuals were gathered. An end-piece from one of the double-ended wooden artifacts was found in BC 85. Again, in BC 87, where future work is planned, scattered human bones were found. In all these cases the remains were painted red and, as indicated by conversations with our guides, were found as secondary burials.

In addition to these caves and open coastal sites, there are a good many sites

in the interior country which are generally located near water and long arroyo banks. Typical of these is BC 82 at El Valle Perdido where the site area is marked by a surface ashy soil lying above arroyo and fan material. This black deposit runs back from the bank of the arroyo for about 300 feet; in depth it runs to four feet where a road has been cut through. In the cutting of the road articulated burials with mineralized bones were encountered as well as scrapers with marked keeling and stemmed blades, including the broad type with short convex stem, and knives.

On the Pacific coast of the Cape Region there is apparently a complete and perplexing absence of coastal shell sites; none were observed and none were known to the local people. However, in the Pacific side of the Sierra Victoria, caves with painted human bones were known. This bears out earlier finds and reports.[18]

In summarizing the archaeology of the Cape Region, we have found that habitation sites are numerous and at times extensive. Common stone artifacts include shallow basin milling stones and cobble handstones, projectile points, of which the most noteworthy are heavy stemmed points, and numerous types of scrapers including well-worked plano-convex ones. We found three methods of disposing of the dead: flexed side burial, ventrally extended burial, and secondary cave burial.[19] In decoration we find the use of incised cane beads, *Olivella* beads, incised oyster shell ornaments, and human incisor teeth. The atlatl was found, as well as the wooden artifacts for which no use is known. Knowledge of much of this material is new. The sequence remains to be worked out; the culture and superposition in some sites indicate changes or replacements of unknown length down to historic times.

MAGDALENA PLAIN

Stretching north and south of the Bahia de la Magdalena, the bleak plains of Magdalena reach from the mouth of Comondú arroyo south to Todos Santos. Landward they merge with the lowlands of the Sierra de la Giganta from which several large arroyo systems—Soledad, Santo Domingo, and Flor de Malba—cut their ways toward the west coast.

In this land, held in the historic period by the Guaicurá Indians, coastal sites are numerous and frequently large. To judge from a cursory survey of the inner edge of the plains, there are many surface sites located along arroyo banks and near permanent sources of water. Caves with unpainted human bones are reported from the Sierra de la Giganta in this area.

18 Belding, *Pericue Indians.*

19 In historic times the Pericú Indians practiced cremation (Massey, *Pericú Indians*).

Important among the coastal sites is BC 68, which is situated on a bluff on the north side of the Arroyo Conejo. The diameter of the site is about 300 feet; in depth it may run to ten feet, although no test has been made. Surface material perhaps represents the historic Guaicurá. It includes the long stemmed projectile points which had been found in the La Paz region. Scrapers of the plano-convex keeled type were found along with flake knives, blades, and choppers. Milling and handstones were found, but in the main the artifacts are from a skilled flake-using people.

In the sand dunes which edge the Llanos de Hiray, there are many sites which bear carefully made thin basin metates of lava, projectile points, and some potsherds possibly reflecting the mission period.

THE GREAT VOLCANIC PLATEAU

The area to the north and east of the Magdalena Plain is dominated by the great lava sheets which cover the eastern and central portions of the peninsula. A tongue of the plateau extends south along the east coast to the north side of La Paz Bay. Rising above the plateau on the Gulf coast is the rugged crest of the Sierra de la Giganta and other ranges. Within the lava plateau lie the deep valleys of San Ignacio, Comondú, and Purísima, watered by ever-flowing springs. The historic Cochimí and Laymon held this region.

Near Comondú are two important archaeological areas: the upper cañons at the base of the Giganta to the east, and the lower arroyo of Comondú where it issues from the lava walled cañon.

In the basin of San Julio and the adjacent cañadas there is a series of caves with deep deposits which we have located and from which we have surface collections. At site BC 57 several items unusual in the archaeology of Baja California were found: block manos of andesite,[20] of the type usually associated in the Southwest with the trough metate, were collected and seen in great quantities; two corn cobs identified as being most similar to Basketmaker and prehistoric Pima-Papago ears;[21] and potsherds of a highly polished red-brown ware with a fairly coarse paste with few granitic inclusions. We hope to excavate this cave soon, but until that time it should be pointed out that there is only the slight chance that these traits would have found their way into this section of the peninsula during the early mission period or subsequently. There remains the possibility of prehistoric contacts, perhaps of brief duration, from the north or across the Gulf.

20 Stone identifications were kindly made by Dr Howel Williams.

21 The identification was made by Dr Edgar Anderson in a letter of October 14, 1946. The cobs are said to be unlike any known recent or old corn of the west coast of Mexico.

Another interesting item that was picked up in one of the caves was an ironwood "bull-roarer."

For several miles to the west of the locality where the Arroyo de Comondú leaves its cañon, there is a plain of silts dissected by washes. From the faunal remains—bison, camel, and horse—which have been collected in this fossil location,[22] it is known that in Pleistocene times it was a marsh. No artifacts have been found in place with these Pleistocene faunal remains, but the presence of longitudinally split bison bones, and reported camel and horse bones with burned ends suggest the work of contemporaneous humans.

On the Gulf coast between Santa Rosalía and the south end of the Bahia de la Concepción, great numbers of large and extensive shell middens occur. In this stretch of coast they are particularly concentrated in the Caleta de San Lucas and along Concepción Bay. These middens are largely composed of remnants of vast quantities of shell fish consumed by the aborigines, but, in road building cuts into some of the San Lucas middens, considerable amounts of animal remains could be seen as well. Artifacts found on the larger and deeper sites such as BC 53 include cobble milling stones and small delicately chipped unstemmed points. The facts that some of these middens attain a depth of fifteen feet and more, and a diameter of several hundred yards, indicate the advisability of regarding occupancy of the region in terms of considerable age.

When one turns to the Pacific coast in the same region, sites are again numerous, although not so large as the Gulf sites. Of particular interest is a double site at the mouth of San Juanico arroyo; here a spring has cut headward into a high site. At the foot of the spring lies another site. There could be well marked age differences between the two sites. Both have deep shell deposit. On the lower of the two we found three grinding stones: two shallow and one of a deep basin type.

Farther north along the San Ignacio Lagoon and the coastal lagoons to the south there are numerous shell-midden sites most of which had numerous cobble handstones and flake tools.

THE NORTHERN DESERTS

Reaching westward to Punta San Eugenio from the northern end of the great volcanic plateau, the sandy wastes of the Vizcaino Desert dominate the broadest section of Baja California. From north of the Vizcaino Desert to the southern end of the San Pedro Mártir mountains, the topography of the peninsula presents sharp contrasts in a series of low mountain ranges running lengthwise of

22 Our remains were identified through the kindness of Dr R. A. Stirton.

FIG. 2. Sketch map of the northern portions of Baja California.

the peninsula, separated by intermontane basins. In historic times this was the land of the Northern Cochimí.

Judging from what we have seen of the area, sites are as numerous as elsewhere on the peninsula, but the quality of artifacts is usually more primitive. Behind the shingle beaches of the Bahia Rosalita there are many shell middens bearing few flake tools. At site BC 52, on an arroyo to the south of Punta Prieta, we found cobble handstones with shallow basin milling stones with very little accompanying flaked material.

Dry Lake Chapala, situated in the interior of the peninsula, is one of the more important archaeological localities on the peninsula both because of the physiographic situation and because the industries represented on the sites have been found beyond the peninsula to the north. Now it is a dry lake basin of about two miles in diameter; and, although it has occasionally held some water during particularly wet years, it cannot have been formed nor served as a site for customary habitation under the present climatic regimen. Around the edges of the basin and particularly discernible at the south end are two benches or higher shorelines, the upper of which is covered and obscured by sand dunes.

Although work and excavations are planned here we have as yet made only limited surveys and surface collections. The artifacts were found to be weathering out of sand on both the upper and lower benches. On the upper beachline are numerous hearths surrounded by refuse and artifacts; no hearths have been located with material on the lower beachline.

Briefly, the material from the lower site belongs to a flake- and core-using culture. Flake artifacts include projectile points similar in most cases to those of the Pinto-Gypsum culture, although some are identical to those of the Lake Mohave and Playa complexes; others appear as yet to be unique. Another component of the Chapala culture is the percussion-flaked leaf-shaped blade. Various end- and side-scrapers were found, and of these one of the most common was the plano-convex "turtle-back" scraper.

The sites along the upper bench are less well-known, but cobble-milling stones and points with side notches and concave bases have been found near the hearths.

At present it seems that there is a close resemblance of artifacts in the Chapala Industry to those of the Playa Industry as described by Malcolm Rogers, and to the Lake Mohave Culture as described by Charles Amsden.[23] There are also resemblances to the Pinto-Gypsum Culture. This is, of course, farther south than these industries have been previously reported, and it is notable that they are found at Chapala under similar physiographic conditions.

NORTHWESTERN BAJA CALIFORNIA

Our survey in the north of Lower California was restricted to the coastal region. Physiographically the region is dominated by the step-like sequence of marine terraces rising inland. Between the terraces and the Sierra San Pedro Mártir lies the Álamo Region, an area of basins and valleys. In the historic period this was the Dominican frontera, extending north of the Arroyo del

23 Rogers, *Early Lithic Industries;* Amsden, *Archaeology of Pleistocene Lake Mohave.*

Rosario nearly to the present International Border.[24] It was, and still is in part, inhabited by the Diegueño, Akwa'ala, and Kiliwa Indians.

This northern portion of the peninsula is the only section where there is known to have been pottery making in historic times.[25] Site BC 63, at La Turquesa, is the farthest south on which native pottery—a perforated potsherd disc—has been found. Elsewhere along the coast sites bearing potsherds are frequent; however there are marked concentrations of sherds on sites adjacent to the Dominican missions. There seems to be a long gap in pottery-bearing sites between Santo Domingo Mission and the old Rosario Mission; potsherds occur on sites near these missions but, so far as I have been able to determine, not in the area between. This naturally raises the question of mission influence and the age of ceramic sites near these missions. The solitary pottery disc from near La Turquesa was most likely a trade item.

More numerous on the coast are shell midden sites with a pure lithic culture. Occurring on such sites are flake tools, principally side- and end-scrapers and knives. Crude percussion flaked core choppers are common. Blades of the Lake Chapala type have not been encountered; projectile points of any sort are very scarce. Plano-convex "turtle-back" scrapers have been found on two sites: BC 44 and BC 47. Cobble handstones and shallow basin grinding stones are fairly common on these coastal sites. The impression is that these coastal middens bear a culture similar to that of the coastal sites on the Pacific coast as far south as Vizcaino Bay.[26]

SUMMARY

Speculations on the prehistory of Baja California have generally been concerned with explaining the presence of the hyperdolichocephalic remains found by Ten Kate and Diguet in the caves of the Cape Region. Physical anthropologists have frequently identified the Lower California crania with a proto- or pseudo-"Australoid," or with the Lagoa Santa type known particularly from South America.[27] More recently remains of the Texas Coastal people have also

24 Peveril Meigs III has contributed a comprehensive study of this region (*Dominican Mission Frontier*).

25 Rogers, *Yuman Pottery Making*. This is a good description of modern pottery-making in the area.

26 Specimens from Turtle Bay, just south of Punto San Eugenio, in the San Diego Museum, check with material found farther south on the coast of the Magdalena Plains and near La Paz. The specimens were examined through the courtesy of Malcolm Farmer, Curator of the San Diego Museum of Man.

27 Dixon, *Racial History of Man*, p. 400; Sullivan and Hellman, *Punin Calvarium*. The literature on this subject is extensive; for a recent analysis and summary see Martinez del Rio, *Origenes Americanos*, pp. 114-125.

been identified with both the "Pericú" (Cerro Cuevoso) and the Lagoa Santa type.[28]

Because the Lagoa Santa and Punin remains were found under conditions suggesting some antiquity, it has been pointed out that the Lagoa Santa type ("Pseudo-Australoid") may represent an archaic sub-stratum in the American Indian population derived from early migrants into the New World.[29] This seems particularly apparent in South America.[30]

It has been usual to regard the Pericú Indians at the tip of the peninsula of Baja California as descendants of old immigrants who were forced, or wandered, into the cul-de-sac. Survival was made possible because of their extreme marginal position shut off from the rest of North America by hostile deserts, the Gulf of California, and the Pacific Ocean.

Supporting this hypothesis is the cultural poverty of the natives in the south of the peninsula at the time of the conquest. Conspicuous in this category is the absence of water containers other than skins or bladders, absence of all but a single type "sewn basket," absence of hook and line fishing, etc. The presence of the dart-thrower, surviving into historic times, may indicate the continuance of a weapon known to have been associated with older prehistoric remains in the Southwest.

The linguistic "strata" wherein the Guaicurá, Pericú and Cora are cut off from the north by the deep penetration of Yuman groups, lends credence to the belief that the southern tribes had been pushed to the south.[31]

Aside from the larger hemispheric considerations is the problem of the relation of the Lower California cultures to those of Southern California and the Arid Southwest. In this preliminary survey we have found that the Playa-San Dieguito Industry (Lake Mohave) is recognizable as far south as Dry Lake Chapala. Certain tools and implements, such as the shallow basin milling stone with its cobble handstone, notched projectile points with concave bases, have an extended distribution on the peninsula; this is true of other artifact types.

Unique items and apparently unique complexes have been found, such as the presence of primitive corn, "block" manos, and pottery in the caves of San Julio; and the Cape complex of secondary, ochre-stained cave-burials, dart-throwers, and double-ended wooden artifacts of problematic usage, and use of

28 Woodbury and Woodbury, *Prehistoric Skeletal Remains*, pp. 39-42.

29 Hooton, *Indians of Pecos Pueblo*, p. 355; Sauer, *Geographic Sketch*, p. 564.

30 Cooper, *Areal and Temporal Aspects*, pp. 432, 449.

31 It is noteworthy that in historic times the movement in progress was the reverse—Pericú and Huchití were moving north and in constant aggressive warfare with the more peaceful Yuman groups (Massey, *Pericú Indians, Linguistic Distributions*).

human incisors in decoration. These facts, at present, are discrete; although extra-peninsular affiliations can be found, their sequence of time of arrival on the peninsula is unknown.

Certain facts regarding the prehistory of the peninsula should be made clear. On the assumption that the earliest migrants into the peninsula would end their journey in the Cape Region, it is still not certain that the historic groups, the best known of which are the Pericú, are direct descendants of the earliest migrants. In the south there is a considerable complexity in the cultural inventory, with probably divergent cultural traditions, which it is difficult to assign to a single original branch.

It is true that several items can be traced down the peninsula and may be explained as tracing migratory movements. In Lower California it is particularly puzzling that the striking burial customs used in the south have never been found, nor are they known, to the north of La Paz—this, despite the abundance of remains and their renown in the south. They may be concealed deeply in caves to the north and may yet be found. Certainly they did not originate in the Cape Region.

The actual peopling of the peninsula may well have been accidental, with wandering gatherers, fishers, and hunters entering a land-of-no-return. However, habitation and rubbish heaps are too extensive and numerous to be accounted for in a few centuries. The Yuman invasion of the peninsula may have been late,[32] but the peninsula had been well settled for a long time prior to their arrival. This is borne out both by the archaeological remains and by the historical ethnography of the peninsula.

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32 Rogers, *Outline of Yuman Prehistory*, p. 191, et seq. Rogers believes the major Yuman invasion of Baja California occurred in the 15th century.

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RECENT OBSERVATIONS ON HAVASUPAI LAND TENURE[1]

ELMAN SERVICE

THE HAVASUPAI INDIANS are a closely knit, isolated band in northern Arizona which has numbered around 200-250 people for as long as we know of them. Dr Leslie Spier visited them in 1918, 1919 and 1921 and has published a full description of their culture.[2] Geographic isolation has restricted the disruptive effects of white acculturation, so that Spier's ethnography is still accurately descriptive of the Havasupai, except for the few modern changes to be discussed in this paper. Aside from my interpretations as to the meaning of these more recent data, I have added nothing which was not already discussed by Spier in his monograph.

The Havasupai live by intensive irrigation farming, and make full use of the approximately 100 acres of tillable land. They are, understandably, strongly attached to their land, and feel that they live in a beautiful oasis which is unique in the arid Grand Canyon region. The individual land holdings are of very small patches, which, because of the vagaries of inheritance, are widely scattered among the holdings of other individuals. There are no particular problems involved in the control and apportioning of water for the fields, as the creek which bisects their canyon supplies more than enough for everyone. Upkeep of the main irrigation ditches is a community affair, while the lateral ditches are kept up by the persons effected.

The Havasupai have no clan system, nor do they even recognize lineages based on relationships beyond the grandparental generation. The conjugal unit and the patrilocal extended family are the chief social structures within the village, which now consists of 38 occupied camps. In an interesting paper called *A Suggested Origin for Gentile Organization*,[3] Spier pointed out the possibility of patrilineal gentes arising here should there occur (1) a greater emphasis in patrilineal inheritance, and (2) a greater regularity in patrilocal residence, which together might tend to bring a further extension of kinship recognition in the father's line. At the time of his visits, the usual post-marital residence was temporarily matrilocal, followed in a year or two by patrilocality.

1 Read before Section H–Anthropology of the American Association for the Advancement of Science, December 27, 1946. The data were obtained during a visit to Supai, Arizona, in May, June, and July, 1946.

2 *Havasupai Ethnography* (Anthropological Papers, American Museum of Natural History, Vol. 29, Part 3, 1928).

3 American Anthropologist, Vol. 24, pp. 487-489, 1922.

Several changes have occurred since Spier's visits. The Indians no longer spend the fall and winter months of each year on the Plateau gathering wild foods and hunting. Males are more prominent nowadays as workers of agricultural land, possibly because this is the chief source of food, whereas in earlier times male hunting and female gathering were important supplementary food-getting activities, especially during the season of Plateau residence. White influence, too, is undoubtedly effective in promoting male predominance. Correlated with the above changes, the custom of temporary matrilocal postmarital residence is disappearing.

Out of 57 intra-village marriages in the past 30 years, 38 were clearly patrilocal, 16 intermediate, and 3 permanently matrilocal. The patrilocal couples all work on the husband's family's land, or have already inherited a share of it. All of the 16 "intermediate" couples live where they do because of various exigencies involving the inheritance of the land they work and/or the acquisition of one of the few permanent type houses. Of the three cases of matrilocality, two occurred because the male's father's household had died out. The other case is that of Spoonhead, who inherited no land from his own family. The reason for this will be mentioned later.

It therefore appears that the second of Spier's conditions has taken place to some extent, namely, an increase in male prominence with more regularity in patrilocal residence. Furthermore, this seems correlated with patrilineal inheritance of land. Apparently this inheritance, however, has not been of the sort that has furthered the patrilineal tracing of kindred. Disposal of land has often been attended by acrimonious disputes, so that one is probably justified in judging that perhaps neither individual ownership nor simple patrilineal succession are necessarily the only rules by which land is allocated. With this in mind I shall attempt to describe land rights by summing up data which involved circumstantial cases of inheritance, transactions, wills, and other overt manifestations.

Items of personal use other than land are clearly owned by the individual, and objects which are *on* the land—houses, crops, horses, and the few cattle—are also individually owned, for there is abundant evidence that a person can dispose of these items largely as he wishes. When he dies, much of his personal property is buried with him, his house is burned or abandoned,[4] and the crops he

4 About half of the houses are now of a permanent type and are not burned at the occupant's death, but are temporarily abandoned, to be occupied later when needed. There is no particular rule of inheritance with respect to the permanent houses, so they can be considered negligible as a factor in this discussion of inheritance. In another type of community, house ownership could, of course, be very important. See Elsie Clews Parsons, *The House-Clan*

planted stand in the fields and rot or are destroyed. These things are so clearly his that it seems disgraceful that anyone else should consider using them after he is dead. The land, however, is not so closely associated with the man who uses it. He can plant on it whatever he chooses, but has no right to dispose of it as he sees fit without consulting his relatives, and additionally, the opinion of the whole closely integrated community is an important factor influencing any decision he may wish to make.

Tribal government is vested in the three native chiefs who are now permanent members of the council created by the Indian Office, but the chiefs and the council exercise little authority, although they are encouraged to do so. Problems of inheritance and land rights, if not solved by the family, are usually argued out and settled by general public opinion, or in extreme cases of non-agreement are carried to the Government Agent as a last resort. For several years the Indian Office has encouraged the Havasupai to make legal statements and wills which would settle the disputes so often attending redistribution of land after a death. These attempts were, of course, based on the assumption that the Havasupai men owned their land as we own ours. That this assumption was not accurate,[5] however, is attested by the fact that in most of the few cases on record, the wills were disputed, and the land was finally redistributed according to the usual complex pattern which pays little or no attention to any perverse notions of the previous occupant.

When Prince Wodo was a feeble old man, he wanted to turn his land over to Lemuel Paya and Henry Hanna, who had been caring for him. Henry was a cousin, and Lemuel was a more distant relative by marriage. Wodo's daughter Lily, and his niece Katie, who had not taken any responsibility for his care, were left out. They started a fuss which became quite bitter. It is said that the old man was so upset that he locked himself in his house, set fire to it, and burned to death. Katie and Lily divided the land. The inheritance pattern which justified this will be discussed below; suffice it at present to note that even in this dramatic situation, Prince Wodo had no voice in the disposition of the land which he had worked all his life.

It should be apparent from the above discussion that familial rights outrank individual rights. As mentioned before, however, the fact of disputes and

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Complex of the Pueblos (in *Essays in Anthropology Presented to A. L. Kroeber*, pp. 229-232, Berkeley, 1936).

5 This is not said as stricture, and furthermore it does not apply to Mr Noble O. Guthrie, the present sub-agent in charge at Supai. He has made a sincere effort to understand the ways of the Indians, and has achieved considerable success. I am extremely indebted to him for his interest and coöperation.

complexities indicates that factors other than simple familial inheritance rules must also be operative. In order to extract some sense from the obvious intricacies of inheritance, it was necessary to prepare a community genealogy, and to draft a detailed map showing the location and the proprietorship of each little plot of land; then the history of each of these individual pieces of land was detailed back as far as it was practical. From a study of the mass of this sort of data, it is possible to isolate three main considerations which tend to govern the familial and community decisions in land reallocation.

First, and most obvious, is closeness of relationship. It must be noted in this regard that "closeness" is perhaps better understood here to involve personal closeness and propinquity rather than actual blood relationship, though the two usually tend to be coincident. Thus a relative who lives and works in close harmony with his other relatives is considered nearer than one who lives away.[6] A second factor involves the personal qualities of the heirs, for a high premium is placed on industry and coöperation. A third factor, and an important one, is the relative needs of the persons being considered. Either or both of the second and third considerations often outweigh closeness of relationship.

I shall illustrate these three points with examples and supplementary discussion. When Gattagama died, Crook, his only heir, received all the land. This is a simple case of patrilineal inheritance, father to son. This is the only example of such simple inheritance, however, for this father and only son relationship is unusual.

The second factor, that allocation of land depends to some extent on the personal qualifications of the individual, is often very important. The three men who are poorest in land holdings, Joe Jones, Pete Mulgullo, and Spoonhead, can be cited to illustrate this point. Joe Jones is one of three brothers, but he inherited very little compared to the other two, because it is said, "He was lazy and wouldn't work." Pete Mulgullo never was interested in farming and, when he was younger, preferred to leave the canyon periodically to work for white men instead of helping care for the familial lands. Spoonhead is lazy and also has been regarded as not quite right in the head.

The third factor, need, is frequently decisive in determining which of several claimants to a plot of land will get it, or if several plots are involved, who will get the most. This concern over need operates at all times and it is not unusual that for this reason alone a distant relative of a dead man might get more land

6 See Mischa Titiev, *The Influence of Common Residence on the Unilateral Classification of Kindred* (American Anthropologist, vol. 45, pp. 511-530, 1943).

than a closer one. It is explicitly felt and avowed that no man should be without enough land for himself and his family, and it is this feeling which tends to keep land holdings more equalized than they would be otherwise. It is quite possible that in this factor public opinion, with a conception of community rights in land, intrudes itself most clearly and overrides the idea of familial rights.

All this is not to say that the land is at any given time always equally divided among families in accordance with the enumerated principles. For example, there is at the present time a widespread dissatisfaction with the amount of land controlled by the Sinyella family. This is because, of the once numerous family, only two brothers remain in the canyon, and they are both unable to work. Consequently they have considerably more land than they can use. This excess land lies idle because several younger members of the Sinyella family are now living outside the canyon. It is difficult to foretell exactly how the community will resolve this situation, but I should guess that if the younger Sinyellas do not return soon, someone else, probably newlyweds, will get permission to use some of the land. After a period of occupation, this land will be thought of as theirs. This is the way such conditions have often worked out previously. Spier has stated that proprietary rights in land depended most emphatically on use,[7] and this feeling seems to be strong today. It is difficult to lend a piece of land for a while, for after the new incumbent has used it for more than a couple of years, he has a pretty valid claim on it and is difficult to dislodge.

In some cases widows hold some of their husband's land, but it is usually, perhaps always, because of the magnanimity of their dead husband's relatives. As soon as a widow remarries, the land reverts to the original family.[8] In general, land tends to stay in the consanguineal family. Rarely, a daughter as well as a son may share in the family land, especially if she marries a man who has little or no land of his own. The Havasupai *say* that newlyweds should be given land by whichever family can best afford it, or preferably by both. If they are not given land outright, as is sometimes the case, they should help work the land and share in the produce of whichever family can best accommodate them. Detailed inheritance histories show that actually the husband's family tends to assume this burden more often than the girl's, but it is not a clear cut rule. As already suggested, it is this condition which seems to determine the present day post-marital residence. There is no marriage rule, beyond a feeling that close

7 *Havasupai Ethnography*, p. 231.

8 See Ruth Benedict, *Marital Property Rights in Bilateral Society* (American Anthropologist, vol. 38, pp. 368-373, 1936).

relatives should not marry.[9] This probably helps account, in part, for the lack of patterning in acquisition of land for newly-weds. Sometimes a couple may hold different small plots of land which came to them from a variety of sources.

Land is sometimes held and worked in common by a group of relatives, though it is oftener divided as a matter of convenience. Sometimes only certain plots are held in common by an extended family, while the others are tended by individual members. There is apparently no feeling that one way is better than another. The tribe owns a large tract of grazing land on the Plateau, where they keep herds of economically useless horses. This area is common tribal land with no boundaries.

It is apparent that it would be misleading to sum up Havasupai land rights as "private property," for as Spier had already indicated,[10] the superficial appearance of individual land ownership is really ownership of the produce of the land. Actually there seem to be varieties of rights which pertain variously to the individual proprietor, the family, and the village.[11] The individual proprietor's rights to the land are largely rights to *use* the land. His control does not extend appreciably further than this, as can be inferred from the fact that if he fails to use the land, someone else soon occupies it. He has practically no rights which involve the disposal of the land, except insofar as he may be an influential voice in the deliberations of his family.

The rights of the consanguineal family are greater, and it is they who, in an immediate sense, have control over the disposition of their land. The rights of the community tend to be ultimate rights. Public opinion, and the council, when it is moved to act by a strong public feeling, is often the force which brings a family squabble to a decision compatible with the tribal interests. The three principles which guide land disposition—relationship, personal merit, and need—are public or tribal conceptions. The factor of relationship tends to keep the land within the family, and thus objectifies the familial rights, while by the latter two principles land tends to be distributed according to the best interests of the whole community.

The fact that a feeling of community rights in land is very strong among

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9 Out of 59 intra-tribal marriages of individuals whose antecedents could be ascertained, 30 were between individuals of no traceable relationship; 9 were of distant relatives no closer than third cousins; 18 were of various degrees of second cousins; and only 2 were of first (cross) cousins, and they were once removed in generation.

10 *Problems Arising form the Cultural Position of the Havasupai* (American Anthropologist, vol. 31, pp. 213-222, 1929), p. 221.

11 See Max Gluckman, *Studies in African Land Tenure* (African Studies, vol. 3, no. 1, 1944) for a theoretical discussion of what he calls "clusters of rights."

the Havasupai, and that use, merit, and need are such important considerations in the allocation of land, are factors which tend to keep patrilineal succession rather far from being a strict rule. The small community size probably helps keep the conception of village rights strong, and the limited amount of tillable land likewise contributes to the amount of community interest in land disposal, for otherwise there would soon be landless couples, while other families would have more than necessary.

One further point made by Spier should probably be discussed in connection with community size. He had mentioned the possible influence of the small population in inhibiting the group consciousness of a larger consanguineal unit, but felt that this would be overcome by the tendency toward the reduction of the number of biological groups represented in the population.[12] Genealogies show that the blood groups are becoming reduced in number, as suggested, but the Havasupai still do not trace their lineages far enough to be aware of this. Lineages are not named, and even the use of the white man's type of surname has as yet had no effect in furthering the tracing of a patrilineal lineage beyond two or three generations, at the most. The "white name" is often changed, and a family may even have a name derived from an ancestral female. As an example of the tendency for a line to proliferate into new named families, three sons of a woman named Siyuidja founded three distinct families: the Siyuidja family, the Wescogame family, and the Watahomidja family. Therefore, I feel that the small population size continues to be of significance in inhibiting nucleation of the village.

My own data, collected twenty-six years after Spier's last visit, affirm, I believe, the essential validity of his analysis of an incipient clan system in Havasupai, and I add only that it appears to me that expansion of the population plus a corresponding increase of agricultural land are necessary ingredients before a unilinear lineage could become fully crystallized here, for only then would it be likely that a rule of patrilineal succession to familial lands could operate freely without interference from the strong conception of village rights which pertains at present.

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12 *A Suggested Origin for Gentile Organization*, p. 487.

EIGHT YEARS IN THE TABEGUACHE AND DOLORES COUNTRY OF COLORADO[1]

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FOR THE PAST EIGHT YEARS, the Museum of Archaeology of the Western State College of Colorado at Gunnison has been engaged in excavating four prehistoric sites in western Montrose County. The work was done during the first half of the month of August in each year. Three large caves and one Pueblo ruin were completely studied.

A short paper such as the present one cannot go into the details with regard to these projects, but rather can give only a general summary and some of the conclusions. Each year the work was fully reported by the author in the pages of *Southwestern Lore*, the official organ of the Colorado Archaeological Society (1940 to 1947, inclusive).

In 1939-40-41 Tabeguache Cave was completely worked. This cave is located in the canyon of Tabeguache Creek about ten miles northeast of the town of Nucla. The deposits on the floor of this cave varied from a few inches to four feet in depth and were mixed with, and covered by, scores of tons of rock that had to be moved.

No culture stratification appeared in this cave. All the material belonged to the Basket Maker II horizon. A large number of the classical traits for this level of culture were encountered. In many instances these were identical to those described by other workers for sites in the highly developed range of this culture —the San Juan, particularly northeastern Arizona. These included such items as corn, squash, cordage, beads, hair ornaments, the umbilical pad, dart points, dart foreshafts, and numerous others of perfectly characteristic Basket Maker type. All told, this cave yielded more than 120 different kinds of objects—some singly, some in duplicate in varying numbers, some in profusion.

On the other hand, some objects, although having Basket Maker relations, were atypical. This might be said of the basketry, which was coiled but with a foundation of one rod only, completely surrounded by the bundle material. All in all, however, the typical traits far outweigh those that are at variance.

The second cave, known as Tabeguache Cave II, that was excavated in 1942-43-44 is located in the same canyon and about ten miles northwest of Nucla. It proved to contain very complex deposits. The upper levels yielded only material

1 Read at the Colorado-Wyoming Academy of Science, Colorado College, Colorado Springs, May 2, 1947.

of the arrow period and all nomadic in character. The very surface trash contained sherds of pottery of a type attributed to the Ute. Below these upper layers were others that revealed Basket Maker objects contemporaneous with an earlier type of nomadic material. The Basket Maker remains included corn, squash, beads, dart points, dart foreshafts, and other items. The nomadic material included stone artifacts of quite different character from those found in the first cave and much more abundant animal food refuse than in the same cave. In our experience vegetable food refuse is more profuse in Basket Maker caves and animal food refuse in nomadic caves and rock shelters.

In Tabeguache Cave II, the Basket Maker articles were too few to indicate habitation by these people. Rather, we have come to the conclusion that its real significance was in connection with trade or conquest.

Underlying the layers just described was a sterile layer. Underlying the latter was the bottommost layer that contained entirely different materials. We have given the name *Tabeguache* to the latter culture. Some of its details indicate an ancestral pre-Basket Maker character. It may be that it is the expression of Basket Maker I in western Montrose County in Colorado.

If this should be, then the meaning of the sterile layer is clear. This layer would indicate that there was no connection between the Basket Maker I *(Tabeguache)* in Tabeguache Cave II and the Basket Maker II material in the higher levels of the same cave. The Basket Maker I happened to be left behind in Cave II, but none of it in the first Tabeguache Cave ten or more miles up the canyon. Some of the Basket Maker II material of the culture period of the first cave was carried to Cave II by nomads in trade or conquest at a later time. In the meantime Cave II was without occupancy.

The *Tabeguache* culture revealed some traits that we have interpreted to be ancestral to Basket Maker II. Among these may be mentioned just two. The Tabeguache point, which is a dart point, is obviously related to the Basket Maker point. That it could be ancestral is indicated by its deposition in layers below true Basket Maker II points. The *Tabeguache* point is relatively more narrow than a Basket Maker point, but of about the same length; it is more serrated, and with the notches shallower. Its typology, however, is clearly that of ancestry—at least in the peripheral culture of west-central Colorado.

The other detail to be mentioned here is a most interesting one and it intrigues the imagination. In the hardpan below the pre-Basket Maker layer were numerous potholes in the blue-green clay. These were ten to twenty inches in diameter and about five to twenty inches deep. All were round but one, which was square. All were filled with fine ashes and charcoal, but none showed any

heat oxidation of the clay. One was found with a very small and delicately constructed stone fireplace superimposed over it. This fireplace had a back-rock not much larger than one's hand, and two rocks at the sides, each not much larger than two fingers. This could not have been an utilitarian fireplace because of its very nature. It appears that the entire setup was ceremonial and that the ashes and charcoal were brought in with some ceremonial intent. It is a miracle that this delicate fireplace stood intact until it was covered up in the deposits. The numerous small rocks scattered in the deposits over the other potholes may have had similar meaning.

This peculiar fireplace underwent three evolutionary changes. Higher up on the cave floor toward the back wall the stone fireplace—exactly as described but without the pothole—becomes heavy and large and definitely utilitarian as one development. The second development was that shallow potholes, also farther up the cave floor, definitely show heat oxidation and cracked bottoms resembling a pavement of small stones, and they yield ordinary fireplace debris. Still higher up and in the soil layers above the hardpan (where there is no clay) the shallow basin-like fireplaces are lined with small flat rocks—clearly an imitation of the heat cracking of the clay of the earlier ones.

The third line of evolution is most interesting. We found an arrangement that we have called a "kitchen." The fireplace was strictly utilitarian. Its back-rock was a large fallen rock; its bed was the hardpan. Heat oxidation indicated this. Its side-rocks were displaced. To the right side of this fireplace, and also in front of the large fallen rock was a large triangular seed grinder still in place, overlying and surrounded by soil charged with organic matter. Between the fireplace and the seed grinder was a small pothole four inches in diameter and four inches deep filled with fine ashes and charcoal and showing no heat oxidation—clearly superfluous as far as utility was concerned. It is entirely possible that there may be a genetic relationship between this small pothole, which was no doubt ceremonial and a survival of the earlier and large potholes, and the later sipapu of Basket Maker-Pueblo times.

The third excavation (1945) in the Montrose County area was in a Pueblo site on the open mesa four miles north of Tabeguache Cave II. This work yielded nothing but what could be expected in a peripheral site of Pueblo I-II times. The masonry was crude to fair and the pottery of numerous types but mainly peripheral in character. Some of it could be definitely cross-dated with known San Juan types.

The fourth excavation, in 1946, was in a cave in the canyon of the Dolores River nearly twenty-five miles west of Tabeguache Cave II. Tabeguache Creek

flows into the San Miguel River, which in turn flows into the Dolores. Dolores Cave is some six or seven miles below the latter confluence.

As in the first Tabeguache Cave, Dolores Cave did not yield any stratification of cultures. Unlike Tabeguache Cave II its deposits did not indicate occupancy in pre-Basket Maker times or into the late Ute period.

All the material in Dolores Cave (laid down from a few inches to five feet in depth) formed one nomadic sequence. The lower levels yielded the dart, and the upper levels the arrow. Intermediate levels yielded both types of weapons as contemporaneous. This would indicate the possible evolutionary development of one people, under outside influence, rather than a succession of different peoples. This cave may have been used by early nomads of the Ute group and their ancestors.

Evidence of Basket Maker artifacts in Dolores Cave was but very slight in the lower levels, and what little there was could, as in Tabeguache Cave II, have resulted from trade or conquest. Among other items, some typical and some atypical, coiled basketry was of the one-rod with surrounding bundle formation. Only one very ordinary rock-ringed fireplace was found in this cave.

Disregarding the pueblo, the three caves, although relatively near neighbors to each other, told different stories. Each had a different sequence. Each revealed details more or less similar, and details very dissimilar. There can be but little doubt that the peoples concerned were related, but that they did not have a homogeneous culture. It is very likely that an offshoot, so to speak, of the classic Basket Makers drifted into this backwoods area, carried on in a peripheral fashion and influenced their neighbors in various ways, and themselves varied in several directions.

The first Tabeguache Cave and Dolores Cave showed little in common, but one remarkable coincidence is worthy of mention. In the lower levels of Dolores Cave was discovered a medicine bundle containing a bundle of owl feathers, a bundle of deer leg skins with the dew claws, a beautiful wooden knife, and a fetish stone, all wrapped into a compact bundle, round and round, with a large rope. All five of these articles were also found in the first Tabeguache Cave more than thirty miles away: three of them as definitely deposited medicine bundles, separately deposited in different parts of the cave—the feathers, the deer leg skins with dew claws, and the rope. The other two items were also found separately but not in bundles. Some aspects of the meaning of this are fairly clear; others excite conjecture. The Dolores Cave bundle may have been a prayer for the death of an important enemy on the part of the ancient warrior who buried it.

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AN ANALYSIS OF ANNAMESE KINSHIP TERMS*

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THE ANNAMESE KINSHIP TERMINOLOGY, which has been described in considerable detail by R. F. Spencer,[1] presents us with an unusual opportunity of studying the interplay of cultural and linguistic factors in the development of a system of this type. Annamese itself is something of a linguistic mosaic, and has been the subject of considerable speculation. Like the Thai languages, it is monosyllabic, tonal and isolating, and some linguists, notably Maspero,[2] have grouped it with Thai. Lexically, however, four distinct layers can be "peeled" off:

1. extensive nuclear material of undetermined affiliations;
2. core of nuclear Mon-Khmer elements;
3. scattering of Thai elements, clearly less nuclear than the above;
4. peripheral mass of Chinese lexical material.

We do not propose here to weigh the linguistic arguments applicable to the above data; some of these have already been discussed in a paper on Thai,[3] in which a closely similar situation obtains. The concept of "nuclear" vs. "peri-

* Because of limitations of special type available it has been necessary to print foreign words in this article in irregular form. Correct orthographic representation will be found in the ORTHOGRAPHIC NOTE at the end of the article—Editor.

1 *The Annamese Kinship System* (Southwestern Journal of Anthropology, vol. 1, pp. 284-310, 1945). Spencer's data are in close agreement with material collected by the writer in Indochina (1938) and from Annamese informants in this country in connection with work undertaken for the Army Service Forces (1943-44).

2 H. Maspero, *Études sur la phonétique historique de la langue annamite: les initials* (Bulletin de l'École Française d'Extrême-Orient, vol. 12, pp. 1-127, 1912). Maspero's footnote 2 to p. 115 *in re* Mon-Khmer vs. Thai lexical elements in Annamese is most misleading, since the Mon-Khmer material is slighted while the Thai material is unduly emphasized. Thus, in the lists of words for parts of the body, the important Mon-Khmer elements tóc "hair" and mui "nose" are omitted altogether, cô? "neck" is listed simply as Thai although it is Mon-Khmer as well as Thai, and cằm "chin" is listed as Thai whereas everywhere in his phonological analysis Maspero himself compares it only with Mon-Khmer forms (Khmer d'-găm, Stieng găm)!

3 P. K. Benedict, *Thai, Kadai and Indonesian: a New Alignment in Southeastern Asia* (American Anthropologist, vol. 44, pp. 576-601, 1942). In this instance an old lexical core showing Indonesian (and Kadai) affiliations occupies a nuclear position in Thai with respect to the more peripherally distributed elements of Chinese origin.

pheral" is elaborated below with reference to kinship lexical elements. The historical generalization to be drawn from the above data is, we believe, as follows: modern Annamese is the product of a linguistic transformation whereby a predominantly Mon-Khmer language was first extensively modified by Thai influence (reduction to monosyllables, development of tones, addition of some peripheral lexical elements) and later overlain with a heavy mantle of Chinese lexical material. The Chinese influence, beginning shortly before the dawn of the Christian era when the Annamese came under the political domination of China, is well attested historically; the Thai influence can only be inferred on linguistic grounds. It will be seen, nevertheless, that the evidence presented by the Annamese kinship terms nicely fits into our general view of the history of the language.

Spencer[4] distinguishes between "primary (nuclear) terms" and "secondary modifiers," although the distinction is admittedly of doubtful applicability in some cases. In the present discussion the terms (mostly primary) are listed under the headings "lineal consanguine," "collateral consanguine," and "affinal," with a view to clarifying the analytical treatment. An effort is made, first, to tag the various kinship terms, where possible, as Mon-Khmer, Thai, or Chinese and, secondly, to discuss the changes we may infer in terminological structure.[5]

LINEAL CONSANGUINE TERMS

	Masculine	*Neuter (Common)*	*Feminine*
5th Asc.		*tô?	
4th Asc.		*so'	
3rd Asc.		*cô'	
2nd Asc.	*ông PF		*bà PM
1st Asc.	cha F		†me. M
Ego: older	anh oB		*chi. oSi
younger		em ySb	
1st Desc.		*con* Ch	
2nd Desc.		*cháu* ChCh	
3rd Desc.		chắ't	
4th Desc.		chít	
5th Desc.		chút	

4 *Op. cit.*, pp. 287-288.

5 Abbreviations: B brother; Ch child; D daughter; F father; H husband; M mother; o older; P parent; S son; Sb sibling; Si sister; Sp spouse; W wife; y younger.

Chinese elements (with asterisk):[6]

tô² "5th Asc." (used as second. mod.) <Ch. tsuo² "FF, paternal ancestor."

so' "4th Asc." (used as second. mod.) <Ch. ʈʂ'iwo¹ "beginning, original (ancestral)."

cô' "3rd Asc." (used both as primary term and as second. mod.) <Ch. kuo³ "late (= dead), old, ancient."

ông "PF" <Ch. ·ung¹ "old man (honorific); PF (voc.)."

bà "PM" <Ch. b'ua¹ "old woman (honorific); PM (voc.)."

chi. "oSi" <Ch. tsi², *id.*

The phonetic developments indicated are regular for Sino-Annamese: ts>t, ʈʂ'>s, uo>o, etc. Chi. "oSi" is a vulgar variant, the regular literary variant being tĭ; cf. chũ' "written character," a vulgar form corresponding to the literary form tu.' <Ch. dz'i³.[7]

Thai element (with dagger):[8]

me. "M"; cf. Thai *me, *id.* (Siamese, Lao, Shan, Khamti, Ahom, White Tai, Black Tai, Tho, Nung, Dioi me).

Mon-Khmer elements (italicized):[9]

con "Ch"; cf. MK *kon, *id.* (Mon, Khmer, Bahnar, Stieng kon).

cháu "ChCh"; cf. MK *čau, *id.* (Mon, Khmer čau, Bahnar, Stieng sau).

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6 The Chinese forms cited are those of Ancient Chinese (ca. 600 AD), as reconstructed by B. Karlgren; vide his *Études sur la phonologie Chinoise* (Upsala, 1915-26) and *Analytic Dictionary of Chinese and Sino-Japanese* (Paris, 1923). The Chinese loanwords in Annamese, which make up the so-called "Sino-Annamese," are descended for the most part from a somewhat later stage of the Chinese language; cf. Maspero *(cit. supra)*, who presents a full treatment of the evolution of the initials in Sino-Annamese. The tones are marked numerically: x^1 and x_1 level, x^2 rising, x^3 falling. For the meanings of the Chinese terms we have employed the excellent study by H. Y. Fêng, *The Chinese Kinship System* (Harvard Journal of Asiatic Studies, vol. 2, pp. 141-275, 1937).

7 *Vide* Maspero, *op. cit.*, p. 55.

8 For a reconstruction of the Thai kinship nomenclature see P. K. Benedict, *Studies in Thai Kinship Terminology* (Journal, American Oriental Society, vol. 63, pp. 168-175, 1943).

9 The MK reconstructions are provisional, inasmuch as no definitive comparative work has yet been done on this stock. The following sources have been used: E. O. Stevens, *A Vocabulary, English and Peguan* (Rangoon, 1896); R. Halliday, *A Mon-English Dictionary* (Bangkok, 1922); E. Aymonier, *Dictionnaire français-cambodgien* (Saigon, 1874); S. Tandart, *Dictionnaire cambodgien-français* (2 vols., Phnom-penh, 1935); P. X. Dourisboure, *Dictionnaire bahnar-français* (Hongkong, 1889); M. Morère, *Essai de dictionnaire français-stieng* (Saigon, no date); H. Azémar, *Dictionnaire stieng* (Saigon, 1887).

Other elements:

anh "oB," from an earlier form *ing (regular phonetic shift in Annamese); cf. Li (Kadai language of Hainan) eng, *id;*[10] also Lao (Thai language) eng "F (honorific)."

No comparisons have been uncovered for cha "F," em "ySb," or the set of terms chă't, chít, chút (3rd-5th Desc.).[11] The use of alliteration here, however, is paralleled in a number of kinship terminologies from Southeast Asia, Tibeto-Burman (Lepcha, Kachin, Burmese, Lisu) and Karen (Sgaw) as well as Thai (Siamese) and Mon-Khmer; cf. the following:

	2nd Desc.	*3rd Desc.*	*4th Desc.*	*5th Desc.*
Annamese	cháu	chă't	chít	chút
Mon	čau	čait	—	—
Khmer	čau	čau tuot	čau luot	čau lea
Siamese	lān	len	lōn	lūa
Burmese	mrê	mrats	—	—
Lisu	li	lā	—	—
Sgaw	li	lo	—	—
Kachin	šu	šu măši	šu mâša	—
Lepcha	nyi-t'i	nyi-t'iŋ	nyi-t'et	—

The lineal nomenclature can be divided into oE (older than Ego) and yE (younger than Ego) divisions. In Annamese only oE terms are differentiated for sex (the secondary modifiers for 3rd-5th Asc. are applied to ông, bà); yE terms take the secondary modifiers trai (masc.) and gái (fem.): em trai "yB," con gái "D." These two divisions of terms are further distinguished on an historical basis: oE terms are largely of Chinese (or Thai) origin, while the yE terms exhibit Mon-Khmer affinities (con, cháu). In the oE nomenclature

10 Li form cited from F. M. Savina, *Lexique dày-français* (Bulletin de l'École Française d'Extrême-Orient, vol. 31, pp. 103-199, 1931). The position of Li as a Kadai language (see note 3) makes this specific tie-up with Annamese somewhat unexpected, although the residual (non-Mon-Khmer, non-Thai) lexical material of Annamese occasionally exhibits correspondences even with Miao-Yao (cf. note 15). It would appear that a distinct lexical "X" complex must be postulated to account for some of these resemblances, said complex constituting a considerable share of the nuclear Annamese material.

11 The earlier order was perhaps chă't, chút, chít; the famous 17th century Annamese-Portuguese-Latin dictionary by A. Rhodes (*Dictionarium annamiticum, lusitanum, et latinum,* Rome, 1651) cites chă't chút chít "quarto neto: quadrinepos," chút chít, cháu chă't chút chít "netos et tartaranetos: nepotes."

only the masculine terms cha "F" and anh "oB" have resisted replacement. In general, it will be observed that the Mon-Khmer elements, which we have assigned to the nuclear core of the language, present a maximum contrast to the Chinese elements, which are known to be of relatively recent introduction, while the single Thai element (me. "M") conforms to the Chinese rather than to the Mon-Khmer distributional pattern. The lexical data from the lineal nomenclature thus agree with the lexical evidence in general in assigning a peripheral role to Thai as compared with Mon-Khmer elements in Annamese.

The P terms cha "F" and me. "M" appear to be of some antiquity in the language. Fêng[12] cites from Chinese sources the terms chê (Ancient ts'ia) "F" and mi (Ancient miei) "M" as used by the people of Wu, an ancient state in south Kiangsu province. These terms are phonetically very close to the modern (and ancient) Annamese forms and attest to their antiquity; this evidence also supports the view that one of the elements in the early population of the South China coast was Annamese. Another pair of P terms in Annamese is found as early as the 8th century AD, viz. bô' "F" and cái "M."[13] Génibrel cites bô' "F" for the modern language as a Tonkinese form; cái now bears the general meaning "female (of quadrupeds)." Bô' is comparable with Thai *bo "F," while cái is linguistically isolated. A reconstruction of the following type seems not unlikely:

	Father	*Mother*
early Annamese terms	cha	cái
Thai terms	bô'	me.

Structurally, the important features of the lineal nomenclature are the two grandparent terms (PF, PM) and the three sibling terms (oB, oSi, ySb). The grandparent terms (ông, bà) are of Chinese origin, as pointed out above, and conform to the Chinese structural pattern. Two grandparent terms are also characteristic of the Mon-Khmer terminologies, however, hence if we postulate a Mon-Khmer type of structure for the early Annamese nomenclature we need suppose only a simple lexical replacement by the Chinese elements rather than a modification of pattern. Thai influence is specifically excluded here, inasmuch as the basic Thai nomenclature calls for four grandparent terms.

The three sibling terms agree neither with the Chinese (four terms: oB, oSi, yB, ySi) nor the Thai (two terms: oSb, ySb) patterns. Most Mon-Khmer

12 *Op. cit.*, pp. 216, 220.

13 Cited by Nguyên văn-Tô', in Bulletin de l'École Française d'Extrême-Orient, vol. 30, pp. 144-145, 1930.

terminologies have sibling terms of Thai type, but Mon has three terms (oB, oSi, ySb), as in Annamese. Inasmuch as one of the Annamese sibling terms (chi. "oSi") is of Chinese origin, one might be tempted to conclude that Annamese originally had only two sibling terms, with the term anh undergoing a semantic shift from "oSb" to "oB," the corresponding "oSi" term being taken from Chinese. This view would suppose a structural as well as lexical influence from Chinese. The following considerations, however, appear to make this view untenable, and we must conclude that the three sibling terms were a feature of the original Annamese system.

1. Annamese anh < *ing "oB" is directly comparable with Li (Hainan) eng, *id.*, as pointed out above. Furthermore, Li has the same pattern as Annamese (ei "oSi," duong "ySb"), hence the semantic associations of *ing, eng "oB" seem well etablished.

2. Spencer cites as secondary modifiers the terms ca$^{?}$ and út, applied to the oldest and youngest, respectively, of a series of kin described by the same term: anh ca$^{?}$ "oldest brother," em út "youngest sibling." Ca$^{?}$, which is also employed in other settings (chúa ca$^{?}$ "supreme chief" = "God"), is the vulgar variant of ca, the literary term for "oB" (anh), from Chinese kâ^{1}, *id.* Út is of native Annamese origin. The 17th century dictionary of Rhodes cites an additional term, viz. a$^{?}$, also chi. a$^{?}$, defined as "irmãa primogenita: soror primogenita" (oldest sister), and the most complete modern dictionary (Génibrel) also cites a$^{?}$ in this meaning. In the modern language, however, ca$^{?}$ has replaced a$^{?}$ in this meaning, i.e. ca$^{?}$ has been semantically generalized to cover kin of either sex: chi. ca$^{?}$ "oldest sister" (for earlier chi. a$^{?}$). The comparative linguistic data here are of some interest. A Tho (Thai language) vocabulary from Hàgiang (Tonkin) has a "oSi," probably to be connected with the general Thai root *a "FySi";[14] 'Ka-nao (Miao-Yao language) has a "oSi," tai a "D."[15] In view of these correspondences it is highly probable that the earlier Annamese system had a$^{?}$ "oSi," which was first semantically differentiated (> "oldest sister") to make way for the Chinese loanword chi. and later displaced even in

14 In A. L. Bonifacy, *Étude sur les langues parlées par les populations de la haute Rivière Claire* (Bulletin de l'École Française d'Extrême-Orient, vol. 5, pp. 306-327, 1905). This Tho dialect departs from the Thai pattern in having four Sb terms, apparently developed through Chinese influence. They present a curious parallelism with the Nu.ng dialect described in Benedict (*cit. supra*, 1943), which has pa "oSi" < Thai *pa "PoSi," na "ySi" < Thai *na "MySb."

15 Cited from J. E. Esquirol, *Dictionnaire 'Ka nao-Français et Français-'Ka nao* (Hongkong, 1931). For the linguistic significance of this correspondence, see note 10.

this secondary meaning by the loanword ca? (originally "oB"). The inferred historical development is indicated in the following table:

		oB	*oSi*
native Annamese terms		anh	a?
Chinese loanwords	literary	ca	tí
	vulgar	ca?	chi.

Semantic Shifts: ca? "oB" > "oldest B" > "oldest Sb"

a? "oSi" > "oldest Si" > (obsolete)

The terms ca? and út are comparable with the kin numeratives (KN) previously described by the writer,[16] which are applied consistently to a whole series of kin. KN, which may be either of numerical ("1st son," "2nd son," "3rd son," etc.) or non-numerical type, are employed by a number of peoples in Southeast Asia, and the evidence strongly indicates that the trait was diffused from a single focus in China. The writer has recently uncovered a reference to the use of KN among the Annamese of North Annam, a culturally marginal area:

> Mais dans le peuple [Annamese] des illettrés, beaucoup suivant en cela une coutume immémoriale, usitée par plusieurs tribus du sud de la China, désignent leurs enfants par le nom de nombre correspondant à l'ordre de leur naissance: *hai, ba, năm* "le second, le troisième, le cinquième." [17]

The terms cited are Annamese rather than Chinese numerals, hence we must speak of stimulus rather than direct diffusion here. The completed diagram of the diffusion of this trait is presented at the top of the next page.[18]

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16 P. K. Benedict, *Chinese and Thai Kin Numeratives* (Journal, American Oriental Society, vol. 65, pp. 33-37, 1945).

17 Cited from L. Cadière, *Phonétique annamite (dialecte du Haut Annam)* (Paris, 1902), p. 42.

18 The Palaung KN described in Benedict *(Chinese and Thai Kin Numeratives)* are of numerical type and represent a direct diffusion from Shan, the Shan KN in turn having been diffused from Chinese. A non-numerical set of seven KN (dāng, di, dyat, dot, kru, dôn, loi) for Palaung is cited in (Mrs) L. Milne, *An Elementary Palaung Grammar* (Oxford, 1921), p. 55; this set of KN represents a stimulus diffusion from the secondary Shan focus (cf. diagram). Further afield, a set of four non-numerical KN or "title-names," used before the given name, has been reported among the Balinese (J. Belo, *A Study of the Balinese Family*, American Anthropologist, vol. 38, pp. 12-31, 1936). These four KN (wajan, madé, njoman, ketoet) form a cycle which is repeated after the 4th child, precisely as in the pre-Han non-numerical Chinese KN (Benedict, *Chinese and Thai Kin Numeratives*, p. 33), which apparently played no role in the diffusion process. These Indonesian KN probably represent an independent focus, although further investigation in this area is required before reaching any definitive conclusions.

Diffusion of Chinese KN

Stimulus diffusion: Laqua, Black Lolo, Annamese.

Late direct diffusion: Lisu, Lolopho.

Early direct diffusion: Thai (Siamese and Shan).

Stimulus diffusion (from Thai): Kachin, Nung, Palaung.

Direct diffusion (from Thai): Palaung, White Karen.

COLLATERAL CONSANGUINE TERMS

	Masculine	*Neuter (Common)*	*Feminine*
1st Asc.	*bác FoB		*cô FSi
	chú FyB		
	*câ.u MB		*dì MSi
	Ego	[Sb terms + ho.]	
	1st Desc.		
	2nd Desc.	cháu (ho.) SbCh, SbChCh	

Chinese elements (with asterisk):

bác "FoB" < Ch. pɐk, *id.*

câ.u "MB" < Ch. g'iəu^{2}, *id.*

cô "FSi" < Ch. kuo^{1}, *id.*

dì "MSi" < Ch. i^{1}, *id.*

The phonetic shifts illustrated above are regular for Sino-Annamese: p > b, g' > c[k], i > di [ži, yi], uo > ô, etc. Câ.u is a vulgar variant, the literary forms being cu.'u, cũ'u (Génibrel also cites cu. as a Tonkinese vocative form; cf. also ông cu. ông ki. "great-grandfather").

No comparison has been found for chú "FyB," which must be considered a native Annamese term. The literary (Sino-Annamese) term is thúc, from Ch. s'iuk "FyB."

The PSb terminology, with the exception of chú "FyB," is wholly of Chinese origin. It is to be noted that the term for "FoB" rather than "FyB" was borrowed, paralleling a similar tendency shown by the lineal nomenclature for yE terms to be more resistant to displacement than oE terms. The PSb pattern is precisely that of Chinese, with the same set of five terms showing patrilineal emphasis (only FB terms differentiated for age). The question arises whether the earlier Annamese PSb pattern was of this or some other type. Thai has a most unusual set of PSb terms in which age differentiation is basic: PoB, PoSi

(these show merging of lines of ascent), FyB, FySi, and MySb (these show separation of lines of ascent, with a patrilineal emphasis as regards sex distinction). The Mon-Khmer systems, to judge from the available material, merge lines of ascent but generally exhibit age distinction in the PSb terms; thus, Mon has terms for PoB, PoSi (perhaps also PoSb), PyB, PySi. Inasmuch as Thai has been deeply influenced by Chinese (see remarks above), one might speculate that the bizarre Thai PSb pattern represents a compromise between emphasis on age, as exemplified by the Mon-Khmer nomenclature, and emphasis on lines of ascent with patrilineal bias, as found in Chinese.

A partial answer to our problem is to be found, we believe, in the collateral PSbCh ("cousin") nomenclature. Annamese employs here simply the Sb terms in extension; where a distinction is desired the secondary modifiers ruô.t ("intestines") and ho. (vulgar variant of hô. < Ch.γuo^2 "door, house, family") are added to designate the lineal and collateral kin, respectively. The Yuman principle is followed, however, in extending the Sb terms, i.e., the basis of identification is the relative ages on the PSb level rather than on Ego's level. Thus, FoBCh is called anh ho. ("oB") or chi. ho. ("oSi") regardless of whether he or she is older or younger than Ego; similarly, FyBCh is called em ho. ("ySb"). Annamese distinguishes between FoB (bác) and FyB (chú), hence the distinction illustrated above is readily made. Annamese also, however, makes a similar distinction between the offspring of FoSi and FySi, MoB and MyB, MoSi and MySi, although the relevant PSb terms lack age differentiation (cô "FSi," câ.u "MB," dì "MSi"). As Spencer notes,[19] "Ego must take his cue from the terms of reference and address applied to these [PSb] relatives by the parents." The phenomenon is one of "retrograde differentiation" (RD), i.e. differentiation implied but not actually present in a term or set of terms; in the present example, the terms anh ho. and em ho., as applied to MBCh, imply a contrast ("MoB" vs. "MyB") that is not actually present in the system.[20]

On the comparative side, the Yuman principle is characteristic of the Thai system, in which it is nicely integrated with the PSb terms, all of which show age distinction (PoB, PoSi, FyB, FySi, MySb). This would appear to be the

19 *Op. cit.*, p. 297.

20 RD might also involve lines of ascent or descent (e. g. terms for FBCh and MBCh but only a single PB term) as well as sex (e. g. terms for FBCh and FSiCh but only a single FSb term). The lineal nomenclature is probably less often affected, e. g. a system with terms for FF, MF, FM, MM but only a single P term. It is suggested here that RD is a type of incongruity and that its appearance in a terminological system calls for special investigation. It is entirely possible, of course, that no real incongruity may exist in some cases, hence the evidence presented by the existence of RD should not be employed *per se* without due attention to the historic picture as a whole.

normal type of integration, without RD. The Yuman type of nomenclature, as described by Spier for North America,[21] exhibits the same integration but in a different pattern, with emphasis on lines of ascent. These North American systems generally apply the principle only to ortho-cousins, just as they also show age distinction only for FB and MSi terms; Papago, however, also applies the principle to cross-cousins, and it is noteworthy that Papago also distinguishes between MoB and MyB, FoSi and FySi. The Yuman principle seems "out of place" in Annamese, which generally lacks age distinctions in its PSb terms. One is led to infer that these PSb terms are structurally as well as lexically of Chinese origin, and that the original Annamese PSb pattern stressed age distinctions rather than lines of ascent, as in Mon-Khmer and Thai. The single native Annamese term of this group to be retained (chú "FyB") probably once had a wider application ("PyB" or perhaps "PySb"). The Yuman principle in Annamese can be attributed to Thai influence, inasmuch as it is lacking in Mon-Khmer.[22]

The PoSbCh terms, as well as other collateral terms, are further differentiated in Annamese by adding the secondary modifiers nô.i (< Ch. nuâi[3] "inner, inside") and ngoa.i (<Ch. nguâi[3] "outer, outside"). Those collateral kin related to Ego through males, e.g. FBCh, are designated nô.i, while all others are designated ngoa.i; thus, anh ho. nô.i "FoBS," anh ho. ngoa.i "FoSiS, MoBS, MoSiS." This type of differentiation is a feature of the Chinese terminology, tied in with the strict distinction of lines of ascent observed in the Chinese PSb terms. Nothing of this kind is found in either Thai or Mon-Khmer, which have essentially bilateral terminologies. It will be observed that the Annamese nomenclature has incorporated precisely those features (PSb terms, nô.i, ngoa.i modifiers) of the Chinese terminology which are essential for the maintenance of distinctions in lines of ascent, which in turn are tied in with the generalized patriarchal family system absorbed by Annamese culture as a trait-complex from

21 L. Spier, *The Distribution of Kinship Systems in North America* (University of Washington Publications in Anthropology, vol. 1, no. 2, 1925).

22 The Yuman principle with RD (no age distinction in PSb terms) has been described for the Independent Lolo of western China (Lin Yueh-hwa, *Kinship System of the Lolo*, Harvard Journal of Asiatic Studies, vol. 9, 1946, p. 89) and, less clearly, for the Karen of Burma (H. I. Marshall, *The Karen People of Burma*, Columbus, 1923). Linguistically, these groups are of Tibeto-Burman (Tibeto-Karen) affinity. The Karen have been strongly influenced by the Shan and other Thai groups, hence diffusion from Thai may be invoked to account for the existence of the Yuman principle here, but a similar explanation is much less likely in the case of Lolo. Elsewhere in Southeast Asia the writer has encountered the Yuman principle only in the Thai and Annamese terminologies, as discussed above, the evidence strongly suggesting a Thai focus for this feature in the area as a whole.

the same source. The rest of the collateral nomenclature (including the Yuman principle), being unimportant in maintaining these distinctions, has resisted Chinese influence, on the structural as well as the lexical level.

An additional non-Chinese feature in the collateral nomenclature is presented by the term cháu (ho.), which is applied both to SbCh and SbChCh, i.e. the 1st and 2nd Desc. generations are equated. The lineal nomenclature also has cháu in the meaning "ChCh" (cháu ruô.t). The cognate Mon-Khmer root *čau is restricted to the meaning "ChCh," the SbCh terms being quite distinct (Mon kamen, Bahnar mon, Stieng muonh, Khmer khmuoi). We can fairly conclude that cháu was originally applied only to kin of the 2nd Desc. generation (ChCh, perhaps also SbChCh), and that the meaning "SbCh" (1st Desc. generation) represents a later semantic extension. The source of this skewed extension (ChCh > SbCh) is not far to seek. Thai has *lān "ChCh, SbCh" (2nd lineal: 1st collateral), *len "ChChCh, SbChCh" (3rd lineal: 2nd collateral). The important point to be noted, however, is that the skew in the Thai system is consistently applied, whereas in the Annamese nomenclature the skew is "straightened out" after the 2nd Desc. generation by the simple device of equating SbCh with SbChCh (cháu ho.). This skewed equation of lineal and collateral kin, whatever may be its ultimate basis,[23] is here certainly a product of Thai influence on Annamese, with an interesting modification that serves to limit its scope.

AFFINAL TERMS

	Masculine	*Feminine*
1st Asc.		*bác (dâu) FoBW
	*giu' o.' ng (rê?) PSiH	*thím (dâu) FyBW
		*mo.' (dâu) MBW
Ego	[Sb terms + rê?, dâu]	
1st Desc.	(con) rê? DH	(con) dâu SW

23 The most probable basis here is teknonymy as applied to siblings, especially, for which there is some evidence in Thai (cf. note 14). A skewed equation can arise secondarily as a result of this practice, e. g. if Ego applies his children's term (PoB or FoB) to his older brother, Ego's children are thereby categorically reduced to the 2nd Desc. generation level with reference to the older brother (their uncle). A similar skew appears in Tibetan and other Tibeto-Burman nomenclatures, sometimes in association with the Omaha pattern, which the writer has attempted to explain in terms of teknonymy and unilateral cross-cousin marriage; vide P. K. Benedict, *Tibetan and Chinese Kinship Terms* (Harvard Journal of Asiatic Studies, vol. 6, pp. 313-337, 1942).

Chinese elements (with asterisk):

giu' o. ng "PSiH" < Ch. d'ïang^{2} (Mod. Ch. chang^{3}) "old man, senior (honorific)." Fêng [24] cites also i^{2} chang^{3} "MSiH" (used during 1st millenium AD), chang^{3} jên^{2} "MSiH, FSiH," also "MB" (used from 4th-6th centuries AD). Giu'o.'ng is a vulgar form, the corresponding literary form being tru'o.'ng, employed only as an honorific (Génibrel: "terme par lequel on désigne les gens âgés ou distingués"). [25]

bác "FoBW"; *vide supra* (collateral terms).

thím "FyBW" < Ch. s'iəm^{2}, *id.* This is a vulgar variant of the literary form thâ?m (*s'* > th is a regular Sino-Annamese shift).

mo.' "MBW" < Ch. muo^{2} "mother, old woman." Mo.' is a vulgar variant of the literary form mâu, defined as in Chinese. Mâu is also the regular Sino-Annamese reading for Ch. məu^{2} "mother" (Mod. Ch. mu$_{1}$), employed as a sex indicator in the Chinese affinal terms: po^{2} mu$_{1}$ "FoBW," shu^{2} mu$_{1}$ "FyBW," chiu^{3} mu$_{1}$ "MBW." The Chinese cognates muo^{2}, məu^{2} have also yielded Annamese mu. "vocative for old woman" (vulgar form) and mô, mâu "old woman, school teacher." Mo.' clearly belongs with this series, although we cannot be certain whether it is based on muo^{2} or məu^{2} (these forms are to some extent interchangeable even in the Chinese nomenclature. [26]

As is evident from the foregoing, the vulgar (spoken) forms play an important role in the Sino-Annamese part of the terminology. The relevant material is tabulated at the top of the next page. [27]

The remaining pair of terms, rê? "S-in-law" and dâu "D-in-law," are of native Annamese origin, as are the spouse terms: chồng "H," vo.' "W." No outside comparisons have been uncovered for any of these terms.

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24 *Op. cit.*, pp. 249, 256.

25 Spencer has du'o.'ng for giu'o.'ng, the latter being the (historically correct) dictionary form. Initial d- and gi- tend to fall together in modern Tonkinese (ž-, y-), hence the orthographic confusion. Initial gi- for tr- is not uncommon, especially in Tonkinese; cf. giành "dispute, contest" for tranh, Ch. ʈʂɤŋ^{1}. Ch. d'ïang^{2} (chang^{3}) is employed in the PSb affinal terminology of some modern Chinese dialects, e. g. Cantonese has ku^{3} čöng^{2} (for standard ku^{1} chang^{3}) "FSiH." The 17th century dictionary of Rhodes restricts the meaning of giu'o.'ng to "MSiH" ("marido da tia irmãa da may: maritus materterae") but fails to cite a term for FSiH, hence we cannot attach any great weight to this evidence.

26 Cf. Fêng, *op. cit.*, p. 264.

27 A convenient source for the vulgar forms is Génibrel's *Dictionnaire Annamite-Français* (2nd ed., Saigon, 1898), in which they are marked with the letter *n.* Literary vs. vulgar doublets are typical of Sino-Annamese, as the Chinese loanwords underwent various mutations in the course of their adoption into Annamese.

	Chinese	*Literary form*	*Vulgar form*
MB	g'iəu^2	cu.'u, cũ'u	câ.u
PSiH	d'iang^2	tru' o.' ng	giu' o.' ng
FyBW	s'iəm^2	thâ?m	thím
MBW	mou^2, məu^2	mâu	mo.'
oB	kâ^1	ca	ca?
oSi	tsi^2	tí	chi.

Two main classes of affinal kin can be recognized, viz. consanguine kin's spouse (KSp) and spouse's consanguine kin (SpK). Annamese has special terms only for KSp, as listed above. SpK are designated by analytical (periphrastic) constructions, e.g. me. chồng "HM," anh vo.' "WoB." In this respect the Annamese affinal terminology closely parallels that of Thai, although teknonymous usages are much more in evidence there.[28] The two categories of affinal kin are carefully distinguished in the Chinese system, but special terms are not restricted to KSp. Finally, the Mon-Khmer nomenclatures differ sharply from any of the above in merging these two categories, e.g. Mon (kao) yeo "SpoB, oSiH"; (boa) pai "SpoSi, oBW"; Khmer bâng thlăy "SpoSb, oSbSp"; phâ-on thlay 'SpySb, ySbSp" (băng "oSb," phâ-on "ySb").

The Annamese affinal PSbSp terms are all of Chinese origin, as pointed out above, and indeed the very presence of special terms of this type is to be attributed to Chinese influence. Terms of this kind are lacking in Thai[29] and probably in Mon-Khmer; Thai simply employs the corresponding consanguine terms, as in English, e. g. *pa "PoSi," also "PoBW" (cf. English "aunt"). In the Chinese system, in general, the terms fu^3 (<b'iu^2) "F" and mu$_1$ (<məu^2) "M" are added as sex indicators to the regular PSb terms to designate the affinal kin, e. g. po^2 (< pɪk) "FoB," po^2 mu$_1$ "FoBW"; i^2 (< i^1) "MSi," i^2 fu^3 "MSiH." Special terms have also been employed at different periods and in different regions of China, the most notable of these being chang^3 (< d'iang^2), applied in various combinations both to FSiH and MSiH *(vide supra)*. In addition, certain vocative forms have been developed through contraction:

s'iuk məu^2 "FyBW" > s'iəm^2 (Mod. shên$_1$), *id.*
g'iəu^2 məu^2 "MBW" > g'iəm^3 (Mod. chin^3), *id.*

28 Benedict, *cit. supra.*, 1943, p. 173.

29 Thai does have an exceptional term *lua, which is ill-defined and apparently of secondary importance. No definite place in the Thai system can at present be assigned to this term, but it is clearly of KSp (feminine) type (Benedict, *cit. supra*, 1943, pp. 172-173).

Fêng,[30] who identifies only the first of this pair as a contraction, dates these terms (shên$_1$, chin^3) from the Sung dynasty (960-1279 AD), but both forms probably arose much earlier in the spoken language.

The sources of the Annamese PSbSp terms are now evident. Annamese bác "FoB," bác dâu "FoBW" exactly parallel Chinese po^2 "FoB," po^2 mu$_1$ "FoBW," with the native element dâu replacing the Chinese sex indicator mu$_1$. Giu'o.'ng "PSiH" is directly comparable with Chinese combined forms such as i^2 chang^3 and chang^3 jên^2, probably having arisen as a shortened vocative form. Thím "FyBW" is definitely a vocative form, from the Chinese contracted vocative s'iəm^2 (shên$_1$). Mo.' "MBW" probably also arose as a vocative rather than directly from Ch. chiu^3 mu$_1$; the contracted form here (chin^3) was not incorporated into the Annamese system. The PSbSp terms of Annamese in general bear a marked vocative "flavor" from the historical point of view; in this respect they resemble the PP lineal terms (ông, bà), derived from Chinese vocative forms.

The interesting pair of terms, rê^2 and dâu, are the Annamese KSp terms *par excellence*. They appear in four different roles:

1. As primary terms: rê^2 "DH," dâu "SW" (more commonly used in combination with con "Ch": con rê^2, con dâu);

2. As applied to yE (neuter) terms, they indicate affinal relationship as well as sex: cháu rê^2 "ChDH, SbDH, SbChDH," cháu dâu "ChSW, SbSW, SbChSW"; em rê^2 "ySiH," em dâu "yBW." Cf. also bác "FoB," bác dâu "FoBW";

3. As applied to oSb terms, they indicate affinal relationship only (these terms are already differentiated for sex): anh rê^2 "oSiH," chi. dâu "oBW";

4. As applied to PSbSp terms (other than bác), which are already highly specific in nature, they play simply a conventional ornamental role and can be omitted in some usages: giu' o.' ng rê^2 "PSiH," thím dâu "FyBW."

As noted by Spencer,[31] rê^2 and dâu must be considered basically primary terms ("DH," "SW") that have undergone semantic extension. The prototype here seems to have been the parallel Thai set of terms, *k'ŏi (masc.) and *baü (fem.). As in Annamese, these terms have the primary connotations "DH" and "SW," respectively, although they are often combined in this sense with Thai *lūk "Ch" (*lūk k'ŏi "DH," *lūk baü "SW"). They are further employed

30 *Op. cit.*, p. 249.
31 *Op. cit.*, p. 302.

as modifiers after neuter (common) consanguine terms, again as in Annamese: *lān k'ŏi "ChDH, SbDH," *lān baü "ChSW, SbSW"; *nōng k'ŏi "ySiH," *nōng baü "yBW"; *bi k'ŏi "oSiH," *bi baü "oBW." This usage is generally restricted to terms for kin of Ego's or descending generations; Shan is exceptional in extending it to the terms *na "MySb" and *a "FySi" (> Shan and Siamese "FySb"): Shan na k'we "MySiH"; a paü "FyBW." The Thai pattern as a whole, then, is seen to be simple and systematic; the primary terms *k'ŏi "DH" and *baü "SW" are extended to serve as indicators of both affinal relationship and sex after neuter consanguine terms. By contrast, the Annamese pattern seems less systematic, less "logical," with the corresponding terms (rê?, dâu) serving a wide variety of functions. Here once again we appear to be concerned with an original Thai feature that has been incorporated, with certain modifications, into the Annamese nomenclature.

SUGGESTED LINES OF DEVELOPMENT

The present-day Annamese kinship nomenclature, as revealed above, is the product of a long and rather intricate development. Both lexically and structurally it contains elements of an "Early" (pre-Thai, pre-Chinese) system, together with features of Thai and Chinese origin. Spencer[32] makes the flat statement, "There is no room to doubt that the structure of the Annamese kinship system is not Chinese," and again, ". . . the Annamese structure may not unreasonably be said to antedate the era of Chinese influence." Actually, the Annamese structure is a highly composite entity, hence all-or-none statements of this kind are hardly applicable here. Thus, if we were to classify kinship systems on the basis of their PSb nomenclature (Lowie), the Annamese system would fall under the heading "bifurcate collateral," yet the PSb pattern is wholly of Chinese origin. Again, on the basis of the PSbCh nomenclature (Spier), the Annamese system would be considered a variety of the "Yuman" type, yet the PSbCh pattern shows both Thai and Chinese influences. We shall do better by examining the system as a mosaic of elements from diverse sources, the product of an unique historical development, putting aside any attempt to fit it into a taxonomic niche.

The Early system must be reconstructed largely on the basis of comparison with the modern Mon-Khmer terminologies, inasmuch as the basic lexical affinities lie in this direction. In general, this Early system appears to have developed as follows:

1. *Lineal terminology:*
Basic pattern has persisted with little or no change.

32 *Idem*, p. 286.

a. Lexical replacement at certain points, viz. oE terms other than those for F and oB.

2. *Collateral terminology:*

Basic pattern has been completely disrupted.

a. Early PSb pattern probably stressed age distinctions: PoB, PoSi, PyB, PySi (or PySb); replaced by Chinese PSb pattern stressing lines of ascent: FoB, FyB, FSi, MB, MSi.

b. Complete lexical replacement of PSb terms by Chinese terms, with the exception of chú "FyB," probably < "PyB" or "PySb."

c. Early PSbCh pattern probably showed simple extension of Sb terms; Yuman principle adopted from Thai; later, under Chinese influence, distinction developed between patrilineal group (FBCh) and all others (nô.i and ngoa.i modifiers).

d. Early SbCh pattern probably called for special term; skewed equation with ChCh (cháu) adopted from Thai, with disappearance of the original special term; skew "straightened out" by equating SbCh with SbChCh; later, patrilineal group (BCh) differentiated, as in the preceding paragraph.

3. *Affinal terminology:*

Basic pattern has been largely disrupted.

a. Early PSbSp pattern probably showed simple extension of PSb terms; special PSbSp nomenclature adopted from Chinese.

b. Early system probably had simple primary terms rê? "DH" and dâu "SW"; under Thai influence these applied as modifiers to neuter yE terms to denote KSp relationship; later extended to the oE terms for oB and oSi and even to the borrowed PSbSp nomenclature.

c. Early affinal terminology may have included special SpK terms, notably for the SpP and SpSb groups, as in Mon-Khmer; if so, the analytical constructions used in the present-day system can be attributed to Thai influence.

An interesting contrast is afforded by the Thai and Chinese influences on the Annamese system. The Thai influence (early) affected certain specific patterns of the system, above all, whereas the Chinese influence (late) made itself felt lexically as well as structurally. The important points are outlined below.

Thai influence (early):

Structural effects:

1. Skewed equation of SbCh with ChCh (cháu).
2. Yuman principle in PSbCh nomenclature.
3. Extension of primary DH, SW terms to act as KSp modifiers (rê?, dâu).
4. (Perhaps) employment of analytical constructions in the SpK nomenclature.

Lexical effects:

1. me. "M"
2. (Dial.) bô' "F" for cha.

Chinese influence (late):

Structural effects:

1. PSb pattern based on distinctions in lines of ascent.
2. Differentiation of the FBCh and BCh (patrilineal) groups from other collaterals (nô.i, ngoa.i modifiers).
3. Employment of special PSbSp terms.
4. (Perhaps) differentiation of lineal and collateral lines in Ego's and desc. generations (ruô.t, ho. modifiers).

Lexical effects:

1. 5th-3rd asc. gen. terms (secondary): tô?, so', cô'.
2. PP terms: ông, bà.
3. chi. "oSi."
4. PSb terms (except chú): bác, cậ.u, cô, dì.
5. PSbSp terms: giu' o.' ng, thím, mo.'.
6. Certain collateral modifiers: nô.i, ngoa.i; ho..

The structural and lexical effects, when considered together, fall under three headings, as follows:

a. Simple lexical replacement without structural change. This is characteristic of the oE lineal terminology, in which only cha "F" and anh "oB" have resisted replacement.

b. Structural change involving semantic shift or extension of the original

terms. This is represented by scattered features in the collateral (chú, cháu) and affinal (rê?, dâu) terminologies. A true semantic shift, as opposed to extension of meaning, is found only in the first of these instances (chú "PyB" or "PySb" > "FyB").

c. Structural change accompanied by new lexical elements. This is found only in the PSb collateral and affinal terminology (PSb, PSbSp terms) and the collateral modifiers (nô.i, ngoa.i; ho.).

It is evident, from a consideration of the material summarized above, that the changes in the Annamese kinship nomenclature have been conditioned by certain conceptual polarities, viz. those of distribution ("nuclear" vs. "peripheral"), age ("older" vs. "younger") and sex ("masculine" vs. "feminine"). Foremost of these is the "nuclear" vs. "peripheral" polarity, applicable to kinship terms as well as to other lexical categories. Distance from Ego within the conceptual framework of the nomenclature serves as a useful measure of nuclearity in the analysis of kinship terms; thus, "father" is nuclear to "uncle" or "grandfather." A closely analogous situation obtains in other lexical categories, e. g. numerals ("three" nuclear to "million"), parts of the body ("eye" nuclear to "retina"), material culture terms ("loom" nuclear to "heddles"). The above may be designated "systemic (pattern) nuclearity," to be differentiated from "historical nuclearity" (along a diachronic axis). The latter is of special significance in comparative work, e. g. Thai *nok "bird" is nuclear to Thai *kai "fowl" (domesticated bird), the former being cognate with Indonesian *manuk "bird, fowl," the latter an old loan from Chinese *kiei̯ "fowl."[33]

The "nuclear" vs. "peripheral" polarity is best reflected in the lineal vs. collateral contrast of the Annamese nomenclature. The lineal terminology, which is nuclear as a whole to the collateral terminology, has persisted with little or no structural modification, and the lexical replacement has been largely peripheral (2nd to 5th Asc. Gen.) in character. The collateral terminology, in sharp contrast, has been almost completely disrupted, both structurally and lexically. The affinal (KSp) terminology presents a similar contrast between nuclear (H, W; DH, SW) and peripheral (PSbSp) elements. Some of the changes in the collateral terminology, as pointed out above, appear to have been directly linked with the diffusion of the Chinese patrilineal family system, i. e. the peripheral elements of the nomenclature were "sensitized" to modification by the specific cultural context.

The influence of the "older" vs. "younger" polarity is strongly marked in the

33 *Vide* Benedict, *cit. supra.*, 1944.

lineal terminology, in which all but two of the oE terms (cha "F," anh "oB") have undergone lexical replacement, whereas the yE terms have been preserved intact. It can further be detected in the collateral PSb terminology, in which the single term to resist replacement (chú "FyB") is of yE type. A number of the oE terms involved are of vocative origin, as we have shown above; these include ông "PF," bà "PM," thím "FyBW," and probably giu' o.' ng "PSiH" and mo.' "MBW." In the Annamese system,[34] as well as in the Chinese system, oE kin are regularly addressed by kinship term, whereas yE kin are addressed by name. This feature simply reflects the "age emphasis" so characteristic of this Sino-Annamese gerontocratic tradition, which leans heavily on "filial piety" as a social monitor. The marked lexical replacement in the oE, as contrasted with the yE, terminology, can in general be explained as the result of the adoption of special vocative terms (Chinese) for oE kin, with subsequent replacement and disappearance of the corresponding descriptive terms (Annamese). This process can plainly be traced in the Chinese system itself, e. g. the early Chinese terms for oB (χiwɐng^1, kuɔn^1) and oSi (tsi^2) have tended toward replacement by the later vocative forms kâ^1 (Mod. ko^1) and tsia^2 (Mod. chieh$_1$), respectively, whereas the terms for yB (d'iei^3) and ySi (muâi^3) have remained free from lexical competition.

The "masculine" vs. "feminine" polarity has played a minor conditioning role in the development of the Annamese nomenclature. Terms for male kin have shown greater resistance to replacement than have the corresponding terms for female kin; cf. the following pairs:

cha "F" vs. me. "mother" (Thai)
anh "oB" vs. chi. "oSi" (Chinese)
chú "FyB" vs. cô "FSi" (Chinese)

It is probable, however, that each of these contrasts has been brought about by specific conditioning circumstances rather than by any general underlying factor. If we reconstruct the Early system with terms for PyB (chú) and PySi, it is understandable that the former term, which fitted into a comparable niche in the Chinese PSb terminology (FyB) should be retained, while the latter term, having no comparable "fit" in the system, should be dropped. The contrast in the oSb terms is perhaps to be tied in with the fact that the Chinese term kâ^1 "oB" has undergone a special semantic development in Sino-Annamese (> "oldest sibling"), thus favoring the retention of the Annamese term for oB (anh). No explanation can be suggested for the contrast in the P terms, though

34 Cf. Spencer, *op. cit.*, p. 306.

it should be kept in mind that both Thai roots (*bo "F," *me "M") are represented in Annamese, the former existing only as a dialectical variant (bô').

The Annamese development set forth above might with profit be compared with similar borrowing or acculturation phenomena elsewhere, although sufficiently detailed studies of individual cases are lacking for the most part. Nuclear elements everywhere appear to show greater resistance to change (structural or lexical) than do peripheral elements. The English nomenclature itself presents us with the perfect example of "distributional" polarity, with its Germanic nuclear core (father, mother, brother, sister, son, daughter; husband, wife) forming a neat contrast with Latin (French) peripheral elements (grand-, uncle, aunt, cousin, nephew, niece; -in-law),[35] and a parallel situation obtains in German. Persian has borrowed its four PSb (peripheral) terms from Arabic, but otherwise maintains Indo-European forms.[36] The Tibeto-Burman languages of northern India, Nepal, and Assam exhibit an interesting range in their extent of borrowing from Indic, e.g. Byangsi has borrowed only a few collateral and affinal terms (FoB, FyB, SiCh; MSiH, WBCh); Dhimal has borrowed all except the primary nuclear terms (F, M, B, Si, Ch); Newari has borrowed all except three nuclear terms (F, M, oSi) and the collateral (peripheral) term for FSi; Magari has borrowed all except the nuclear term for Ch.[37] The Thai languages of southern China (Dioi, Nung) further illustrate the relative conservatism of nuclear as opposed to peripheral elements.[38] The question arises whether the contrary situa-

35 The contrast between nuclear and peripheral elements in situations of this kind is often supported by frequency counts; in the present illustration all the nuclear terms except one (daughter) have frequencies in the first 500 by the Thorndike count, whereas all the peripheral terms except one (uncle) have frequencies in the second 1,000 or higher (daughter and uncle have frequencies in the second 500).

36 Data from L. H. Morgan, *Systems of Consanguinity and Affinity of the Human Family* (Smithsonian Contributions to Knowledge, vol. 17, 1871), p. 47.

37 Panna Lall, *An Enquiry into the Birth and Marriage Customs of the Khasiyas and the Bhotiyas of Almora District, U.P.* (India Antiquary, vol. 40, 1911) (Byangsi); B. H. Hodgson, *On the Kocch, Bódo, and Dhimál Tribes* (Calcutta, 1847); H. Jörgensen, *Versuch eines Wörterbuches der Nevâri-Sprache* (Acta Orientalia, vol. 6, 1928); J. Beames, *On the Magari Language of Nepal* (Journal, Royal Asiatic Society, n. s., vol. 4, 1869).

38 A detailed discussion of Chinese influences in Dioi and Nung is presented in Benedict, *cit. supra*, 1943. A Nung dialect recently recorded by Li Fang-kuei (*The Tai Dialect of Lungchow*, Academia Sinica, Institute of History and Philology, Monographs, Series A, no. 16, Shanghai, 1940: in Chinese) shows much greater retention of Thai elements. This dialect has realigned the Thai PSb terms in an interesting manner; Thai *na has been shifted from "MySb" to "MySi" and the Chinese loanword g'iɔu^2 "MB" has been paired with it in the meaning "MyB" (Nung k'u, with k'au as a later variant), thus furnishing a parallel for the Thai pair of terms for "FySi" (*a) and "FyB" (*âu). This development, under Chinese influence, is to be contrasted with the realignment found in Siamese and Shan, which have *a "FySb" (< "FySi") paired with *na "MySb."

tion exists, with the peripheral elements of the nomenclature more resistant to modification than the nuclear elements, and if so, under what circumstances (the writer knows of no good example).

One might also ask whether the yE terminology, in general, tends to be more conservative than the oE. Both the Chinese and Thai, as well as the Annamese, nomenclatures share in this feature, e.g. the kinship terminology of the Nung dialect recorded by Li[39] employs some dozen Chinese loanwords, all of which designate oE kin. The Indicized Tibeto-Burman terminologies, however, can hardly be said to show any comparable trend, and a reverse situation may even obtain in some cases, as in Newari (see above). The third selective factor noted in the Annamese development ("masculine" vs. "feminine") seems to be little in evidence elsewhere in southeastern Asia.

Perhaps, as properly reared anthropologists, we must await that quasi-mythical day when "sufficient material" will have been gathered before we can hope to attain any real understanding of the intricate cultural and linguistic processes involved in problems of this sort. In the interim, however, which promises to be a lengthy one, it surely behooves us to examine more carefully what we do have, if only on the chance that a stray outline or two of the definitive picture might emerge.

39 *The Tai Dialect of Lungchow.*

Orthographic Note

a$^{?}$	is properly	ă	g^{w}ĭ^{ə}u^{2}	is properly	g^{w}j^{ə}u^{2}	s$^{'}$	is properly	ʃ
bô$^{'}$		bố	giu'o.'ng		giuợng	so$^{'}$		sở
ca$^{?}$		cả	ho.		họ	s$^{'}$ĭ^{ə}m^{2}		ʃj^{ə}m^{2}
că`m		cằm	hô.		hộ	s$^{'}$iuk		ʃjuk
câ.u		cậu	ki.		kị	thâ$^{?}$m		thẩm
chă't		chắt	mâu		mẫu	tô$^{?}$		tổ
chi.		chị	me.		mẹ	tru'o.'ng		truợng
chô`ng		chồng	mo.'		mợ	ts$^{'}$ia		tʃja
chũ'		chữ	mô		mỗ	tsia^{2}		tʃja^{2}
cô$^{'}$		cố	mu.		mụ	ʈʂ^{w}ĭwo		ʈʂ^{w}jwo
cô$^{?}$		cổ	mui		mũi	tu.'		tự
cu.		cụ	ngoa.i		ngoại	văn-Tô$^{'}$		văn-Tố
cu.'u		cựu	no.i		nọi	vo.'		vợ
cũ'u		cữu	Nu.ng		Nụng	χiwɐng^{1}		χjwɐng^{1}
d$^{'w}$iang^{2}		d$^{'w}$jang^{2}	rê$^{?}$		rể			
du'o.'ng		dượng	ruô.t		ruột			

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